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TRAINING FOR THE PRACTICE OF AVIATION MEDICINE

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• *There is a definite need for special training for physicians to cope with the multitude of medical problems created by flight Aviation medicine should be considered as an alloy composed of elements of several of the other basic medical specialties, such as ophthalmology, otolaryngology, psychiatry, internal medicine, and preventive medicine In addition to the "family doctor" type of practice to flying personnel, there is the full time specialized practice of aviation medicine, which includes consultants and investigators To become a true specialist in aviation medicine one must undergo several years of graduate training*

The seeds of aviation medicine were planted in the latter part of the 18th century, when man began to take to the air in balloons Germination of these seeds, however, was delayed until the early part of the 20th century, when World War I accelerated the development and use of aircraft

The need for special training for physicians, scientists, and aircrews to cope with the multitude of new medical problems created by flight was realized early in the 20th century However, the first course of instruction in this new field of medicine, "The Basic Course for Flight Surgeons, was not offered until 1919 when the new School for Flight Surgeons was opened by the Army Air Service One can say with reasonable accuracy that almost everything known about aviation medicine at that time could be taught in the three to four months allotted to this course Although the field grew, slowly but steadily, between the two world wars, the length of the basic course remained relatively constant

World War II boosted the growth of aviation tremendously and introduced the jet era It also stimulated aviation medicine research and investigation During the period of emergency, the basic course was shortened to six weeks Its graduates were designated 'aviation medical examiners' (A M E) instead of 'flight surgeons To obtain the latter rating an apprenticeship of one year was, and still is, required

By 1949 the store of aviation medical knowledge and the need for physicians with advanced training in this new field became so great that the U S A F School of Aviation Medicine initiated an additional academic year of aviation medical graduate education This 'Advanced Course in Aviation Medicine" was given to selected medical officers

The Korean war and the "cold war,' which followed in its wake, gave even greater impetus to the growth of aviation and opened the doors to the rocket age Again it became evident that still more thoroughly trained medical specialists in aviation medicine were required to keep the medical service abreast of these developments Therefore, in 1952 the Air Force program was lengthened and broadened by adding an academic year of preventive medicine and two years of residency training in aviation medicine In the following year, aviation medicine gained official recognition as a medical specialty and the Air Force Specialty Training Program was adapted to that recommended by the certifying board in aviation medicine

In 1954, with the concurrence of the board, two years of supervised practice were substituted for one of the years of residency training In addition to at least one year of prerequisite training, the program now consists of a minimum of three years of formally organized and conducted training and of two closely supervised years of practice of the specialty

The growth and development of educational programs in the new specialty of aviation medicine is depicted graphically in figure 1 Obviously it has been extraordinarily rapid Consequently, I would like to consider this subject and to review briefly the first graduate educational program specifically designed to prepare a physician for the practice of aviation medicine as a specialty

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Read before the 27th annual meeting of the Aero Medical Association Chicago April 18, 1956

Educational Requirements

The "Essentials of Approved Residencies and Fellowships," published by the American Medical Association, and the bulletin of the American Board of Preventive Medicine on training requirements for certification in aviation medicine offer the specifications for the construction of training programs in the specialty of aviation medicine Briefly, in addition to graduation from an approved school of medicine and completion of an approved internship, the following special education requirements must be met in order to become eligible for examination for certification in aviation medicine

1 One year graduate study in preventive medicine in an accredited school of public health

2 One year of graduate study in aviation medicine in an accredited school of aviation medicine

3 At least one year of residency in aviation medicine

4 Not less than one year of supervised practice of aviation medicine

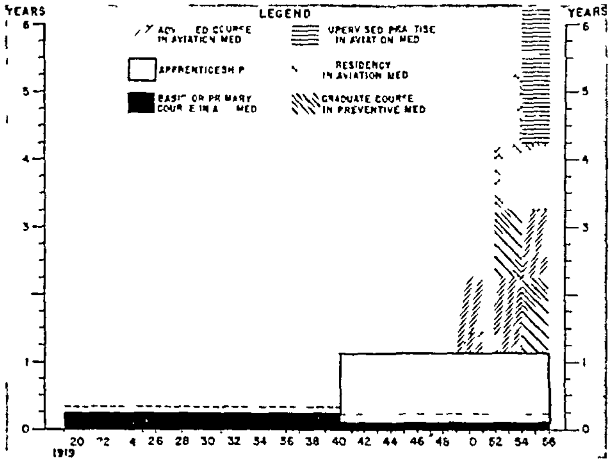

Fig 1—Graphic illustration of rapid and recent increase in time required for training for the practice of aviation medicine as a specialty

5 Not less than two years, in addition to the above, of special training teaching, research, or practice of aviation medicine

If a training program is compared to a building, these specifications could be said to indicate the number of floors which the building must have and the broad purpose of each floor They, however, do not give any guidance on either the order in which these floors will be arranged or on the types of building materials which will be used in their construction Any educational architect, therefore, in preparing plans for an aviation medicine specialty training program still faces many problems for which he must provide a solution As indicated before, the Air Force program was constructed one floor at a time over a period of many years without the benefit of a blueprint for the final edifice Consequently, during the past two years, it has been necessary to remodel a large part of the original building to better adapt it to its present purpose

Problems and Solutions

In the operation of this program over the past four years, many problems have been encountered and, in the search for solutions, many lessons have been learned These so-called solutions, however, are not considered to be the ultimate answer, and the program is constantly being revised and improved Fortunately, the Council on Medical Education and Hospitals of the American Medical Association and the Board of Preventive Medicine recognize the need for flexibility at this early developmental stage and have encouraged such experimentation

Definition—In designing a training program for the specialized practice of aviation medicine, the first major problem encountered is the lack of a clear, universally accepted concept of aviation medicine as a specialty When we asked various leaders in this field for their ideas on this subject, we found for example, that many of those with extensive experience and training in the clinical specialties—such as ophthalmology, otolaryngology, or internal medicine—considered aviation medicine primarily a clinical specialty, others, whose experience and training had been principally in preventive medicine, thought of it as a variation of that specialty, another group, which had been concerned most with its administrative and military aspects, regarded aviation medicine as an aerial version of military medicine

In the preparation of our program we have considered aviation medicine as an alloy composed of elements of several of the other basic medical specialties such as ophthalmology, otolaryngology, psychiatry, internal medicine, and preventive medicine We have insisted that it bears no more relation to military medicine than any other medical specialty in which training is conducted in a military environment or institution

Many who agree on the nature or composition of aviation medicine seem to have difficulty in recognizing the role of the specialist in this field For clarification of this point, one may divide the practice of aviation medicine into two types—the general practice and the specialized practice Those engaged in the first type may be regarded as the 'family doctors' of flying personnel As such, they may practice aviation medicine on either a full-time or part-time basis In preparation for this type of practice, a comparatively short postgraduate period of training has sufficed In contrast, the specialized practice of aviation medicine is a full-time practice Those engaged in this type of practice must be able to solve problems—as consultants or investigators—which are beyond the usual capability of the general practitioner of the specialty Today, to acquire this level of knowledge and skill in aviation medicine one must undergo several years of graduate medical education to become a true specialist It is for the latter type of practitioner that our Aviation Medicine Specialty Training Program is designed

Objective—The second major problem encountered in planning such programs is the establishment of the objective Here, again, one is faced with a wide variety of opinions Stated simply, the objective of this program is to prepare selected physicians, through intensive, specialized training, for employment—dependent upon their interests and talents—as aviation medicine consultants, researchers, and teachers and, after adequate experience, as directors or supervisors of aviation medicine programs conducted at any level

Air Force Program

The four phases of the U S A F Aviation Medicine Specialty Training Program may be depicted as a multistaged rocket ship aimed at a career in aviation medicine The entire program is built upon a background of a general medical education including an internship The period of prerequisite training forms the launching platform The academic year of graduate study in preventive medicine (phase 1) gets the program off the ground The advanced course in aviation medicine (phase 2) provides added momentum and sets the course for the objective In the residency year (phase 3) the program is given added thrust which will sustain the flight for a long time in the rarified upper stratosphere and space The supervised practice years (phase 4), with a final, comparatively even output of energy, carry the trainee on a steady course to his objective

Phase 1—The Graduate Course in Preventive Medicine—If the specialty of aviation medicine is considered objectively, almost everyone will agree, first, that, as a separate discipline of medicine it is concerned primarily with preventing accidents, illness, loss of effectiveness, and deaths due to flight, and, secondly, that it is more concerned with the problems of large populations than individuals It is obvious, therefore, that any graduate education program and career in aviation medicine must be built upon an understanding of the fundamentals of preventive medicine For this reason, the graduate course in preventive medicine constitutes the first phase of the program

This academic year is provided at either the Johns Hopkins School of Public Health and Hygiene or the Harvard School of Public Health for Air Force trainees Both of these schools have altered some of their courses and added other new ones to their curriculums in order to better present some of those aspects of preventive medicine which are applicable particularly to aviation medicine

In both schools the student is offered an opportunity to qualify for a master of public health degree by taking certain required courses specified by the school These account for approximately 50% of the total number of hours In addition, Air Force students are advised to take specific "elective" courses which consume another 25% of the total available time This is done in an effort to balance the educational fare offered by the two civilian schools, to insure that certain subjects are adequately covered prior to phase 2, and to avoid undesirable repetition and duplication of subject matter in the second year A list of the more pertinent subjects offered our students in this year is shown in table 1

Phase 2—The Advanced Course in Aviation Medicine—Phase 2 is given at the School of Aviation Medicine, U S A F, Randolph Air Force Base, Texas In this second year of graduate study the student's attention is focused sharply on aviation medicine per se

In the first six weeks all students are given flight indoctrination training with a class of flying cadets so that they may experience and better understand the psychological and physiological stresses of flight They attend ground school and receive in-flight instruction in both conventional and jet aircraft

During the remaining 10 months there is a thorough coverage of those parts of the basic sciences—such as physiology, biophysics, biochemistry, pharmacology, and psychology—which form the matrix of aviation medicine A large portion of the time is spent on pure aviation medicine subjects such as the selection and classification of flying personnel, human engineering problems in aircraft, the planning, organization, and conduct of aircrew maintenance and effectiveness programs, rescue and survival training for aircrews, and the evacuation of patients by air Students are shown how to apply the fundamental principles of preventive medicine learned in phase 1 to aviation medicine problems Both didactic instruction and practical training are given in those clinical fields most closely related to aviation medicine These include ophthalmology, otorhinolaryngology, neuropsychiatry, internal medicine, and traumatology On well-organized, conducted field trips the students visit aircraft plants, civilian airline facilities, and military and civilian aviation test and research centers to observe aviation medical problems at their source and to study various types of aviation medicine programs and investigative studies designed to solve them All students are given a brief

TABLE 1 —*Subjects Offered During Academic Year in Preventive Medicine (Phase 1 of Program in Aviation Medicine)*

Required Subjects
  Principles of biostatistics
  Principles of public health administration and practice
  Principles of sanitation and sanitary engineering
  Principles of epidemiology
  Principles of public health microbiology
  Ecology biological and social (H)*
Elective Subjects
  Principles of environmental and industrial health†
  Physiological climatology† (JH)*
  Parasitic infections of man† (JH)
  Forensic medicine†
  Aviation medicine seminar† (H)
  Principles of bacteriology and immunology† (H)
  Human factors in industrial safety† (H)
  Basic problems in industrial hygiene (H)
  Human problems of adjustment in industry (H)
  Industrial medicine practice (H)
  Advanced epidemiology (H)
  Analysis of population data
  Analysis of data from special studies (H)
  Practice of epidemiology (H)
  Rickettsial and virus diseases (H)
  Conservation of health in tropical countries (H)
  Noninfectious mass disease and injury (H)
  Military preventive medicine (H)
  Hygienic aspects of ventilation (H)
  Environmental physiology
  General principles of audiology and speech (JH)
  Chronic disease seminar (JH)
  Statistical methods in epidemiology (JH)
  Pathogenesis and pathology of neurotropic virus diseases (JH)
  Mycology (JH)
  Military mental hygiene (JH)
  Elements of statistical analysis (JH)
  Biological problems of control in virus diseases (JH)

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† Elective courses which all U S A F aviation medicine students are required to take

* H Harvard School of Public Health
JH Johns Hopkins School of Hygiene and Public Health

course in effective oral and written communication Also, a small portion of the curriculum is allotted to military medical subjects related to the practice of aviation medicine in the Air Force The percentage of the total time given to each of the major subject areas is shown in figure 2 The relative amount of time and the actual number of hours of instruction devoted to each subject is depicted in figure 3

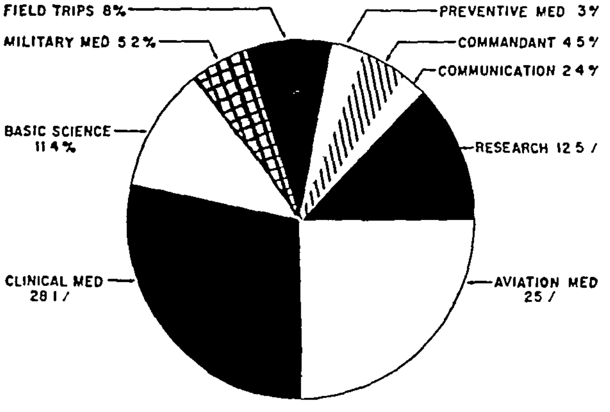

Fig 2—Percentage of total hours devoted to major subject areas in advanced course in aviation medicine

Phase 3—Residency in Aviation Medicine—During the year devoted to phase 3 residents are given an opportunity to apply the knowledge which they have acquired during the first two academic years to practical problems in all aspects of aviation medicine Active participation with assumption of responsibility, rather than passive observation, is stressed

Aviation medicine residencies are conducted under the auspices of the Tactical Air Command at Langley Air Force Base, Va, of the Air Materiel Command at Wright-Patterson Air Force Base, Ohio, and of the U S A F School of Aviation Medicine at Randolph Air Force Base, Texas The residency at Langley has the distinction of being the first one established in the specialty of aviation medicine It was organized in 1952 by Brig Gen M S White, who is the surgeon of the Tactical Air Command and was one of the pioneers in aviation medical education The second residency in aviation medicine was established in 1954 at Wright-Patterson Air Force Base under the leadership of Brig Gen Edward Tracy, who is the surgeon of the Air Materiel Command The third residency was inaugurated in 1955 at the School of Aviation Medicine under the leadership of its late commandant, Brig Gen Edward Kendricks

These senior medical officers are the directors of their respective residencies As such, they furnish over-all guidance and supervision Each program has a coordinator who is responsible for planning, scheduling, coordinating, and administering the residency program The chiefs of the several services and divisions in which the residents receive training provide close supervision to each resident

Langley and Wright-Patterson Residencies The residencies at Langley and Wright-Patterson air force bases are organized in a very similar manner As shown in figure 4, both 12-month programs are divided into three parts of equal duration In the first division, the resident devotes his time to the clinical practice of aviation medicine, in the second, he participates in the practice of aviation medicine at the level of an air base, in the third, he practices the specialty at the level of a major air command The titles which I have given to these divisions are similar, but not identical, to those used in each of the residencies The ones which I use have been chosen because they are more easily identified with their civilian counterparts For example, the "air base' level of aviation medicine practice in the military would correspond roughly to that at a civilian airport, a commercial airline base, or an aircraft manufacturing plant, and the "air command' practice would correspond to that engaged in by the medical director of a large commercial airline or an aircraft manufacturing company with several plants

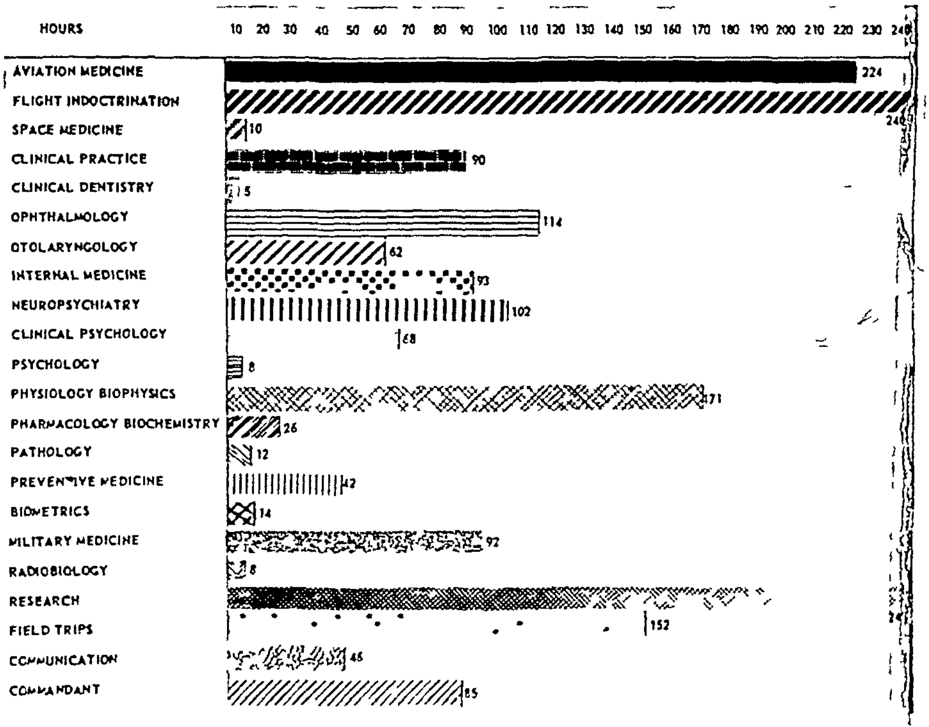

Fig 3—Total number of hours devoted to each subject in advanced course in aviation medicine

The facilities and organizations used in the Langley program include the office of the surgeon of the Tactical Air Command, the base hospital and flight surgeon's office, a physiological training unit with a low-pressure chamber and its associated equipment, several local tactical fighter and fighter-bomber squadrons equipped with a wide variety of aircraft, any of the numerous air bases of the command, and one of the largest research laboratories of the National Advisory Council on Aeronautics At Wright-Patterson, use is made of the office of the surgeon of the Air Materiel Command, the base hospital and flight surgeon's office, several local flying squadrons and a flight test group equipped with a wide variety of aircraft, any of the several air bases of the command, the flight research center and its aeromedical laboratory, and the Kettering Laboratory in nearby Cincinnati

Clinical Aviation Medicine Portion The clinical aviation medicine training is conducted principally in the base hospitals and their outpatient clinics, including the base flight surgeon's office, by board-qualified specialists in aviation medicine, ophthalmology, otorhinolaryngology, psychiatry, internal medicine, general surgery, radiology, pathology, and several less closely related specialties In electing the clinical specialties in which they wish to receive additional training, the residents are allowed considerable freedom but are encouraged to correct recognized deficiencies in those most closely related to aviation medicine

Both hospitals are designated as aviation medicine specialty centers As such, they serve as diagnostic and, if necessary, treatment centers for problem cases involving flying personnel and threats to their flying activities These cases may include conditions with an obscure cause, such as episodes of vertigo, syncope, unconsciousness, hematemesis, transitory paralysis angina, cardiac arrhythmias, and disorientation They also may be diagnosed conditions such as spontaneous pneumothorax, early rheumatic heart disease, healed peptic ulcer, arrested tuberculosis, severe allergic rhinitis, and various types of visual impairment and deafness which require clinical studies, evaluation, and expert advice concerning the future flying status of the personnel This consultation practice on such aviation medicine problem cases is potentially one of the most valuable portions of the residency training

In the Langley hospital all aircrew inpatients are admitted to the aviation medicine service When necessary they are referred or transferred to other specialty services for diagnostic assistance, care, and treatment When this is completed, they are returned to the aviation medicine service for disposition and follow-up care Aviation medicine residents, as members of the house staff, are responsible for these cases on both an inpatient and an outpatient status

At Wright-Patterson, only flying personnel with illnesses or conditions peculiar to flying, such as dysbarism and aero-otitis, and those with aeromedical problem cases, referred for aviation medicine consultation, are admitted to the aviation medicine service as inpatients Other aircrew inpatients are admitted directly to the specialized services as indicated by their clinical conditions During their hospital assignments, aviation medicine residents are assigned to the aviation medicine service On a consultant basis, they follow the clinical course of all aircrew patients in the hospital and "work-up' all patients referred for aviation medicine consultation In addition, they rotate to the other specialty services in which they elect additional training

This inpatient portion of the resident's training presents certain problems for which we have no true solutions It is not known whether it is best to admit all aircrew inpatients to the aviation medicine service and to refer, or transfer, them to other specialized services only when necessary for consultation or treatment beyond the capability of the aviation medicine specialists (as is done at Langley) or to admit them to another specialized service and follow their course only as consultants on the aviation medical aspects of their conditions I tend to favor the latter However, I am convinced that all patients with conditions peculiar to flying and all aircrew members referred for consultation as having aviation medical problem cases should be admitted to the aviation medicine service on either an inpatient or an outpatient basis, for only by this procedure can proper training be provided in the clinical aspects of aviation medicine

In this phase of the program there also is considerable variation in opinion in regard to the amount of time which should be devoted to clinical training Here again we find the conflict between those who view aviation medicine primarily as a clinical specialty and those who view it primarily as a preventive medical specialty Initially, in the Air Force program we have tended to side with the latter and have endeavored to maintain a balance in favor of the preventive side without neglecting the important clinical aspects I believe that, after we have had more experience, we may give greater emphasis to clinical aspects during the residency year

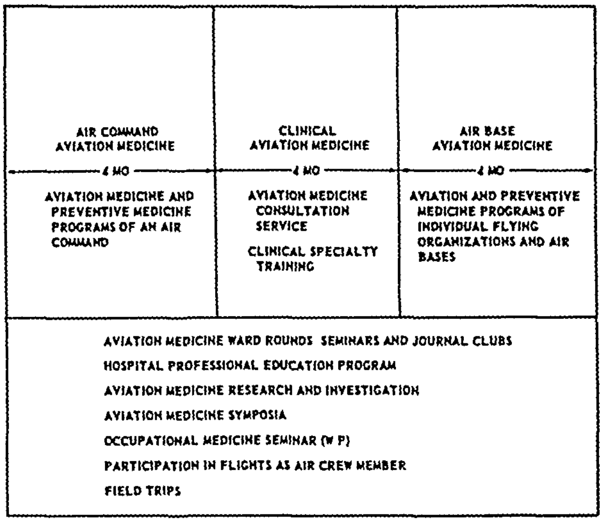
AIR COMMAND AVIATION MEDICINE
4 MO
AVIATION MEDICINE AND PREVENTIVE MEDICINE PROGRAMS OF AN AIR COMMAND
CLINICAL AVIATION MEDICINE
4 MO
AVIATION MEDICINE CONSULTATION SERVICE
CLINICAL SPECIALTY TRAINING
AIR BASE AVIATION MEDICINE
4 MO
AVIATION AND PREVENTIVE MEDICINE PROGRAMS OF INDIVIDUAL FLYING ORGANIZATIONS AND AIR BASES
AVIATION MEDICINE WARD ROUNDS SEMINARS AND JOURNAL CLUBS
HOSPITAL PROFESSIONAL EDUCATION PROGRAM
AVIATION MEDICINE RESEARCH AND INVESTIGATION
AVIATION MEDICINE SYMPOSIA
OCCUPATIONAL MEDICINE SEMINAR (W P)
PARTICIPATION IN FLIGHTS AS AIR CREW MEMBER
FIELD TRIPS

Fig 4—Principal divisions of aviation medicine residency programs of the Tactical Air Command (Langley Air Force Base) and the Air Materiel Command (Wright-Patterson Air Force Base)

Air Base Aviation Medicine Portion The air base aviation medicine portion of the residency is built around the aviation medicine outpatient clinic (base flight surgeon's office) and emphasis is given to the aircrew effectiveness programs of the base and individual flying units During this period the residents conduct the aircrew effectiveness programs of the flying units to which they are assigned, provide consultation on aviation medicine problems referred to them, and sharpen their diagnostic acuity and therapeutic skill in the closely allied clinical specialties by working in those clinics In the Wright-Patterson program, this training is given in a separate four-month period, at Langley it is combined with the clinical aviation medicine training into one eight-month period

In both programs, clinical training is enhanced by participation in other portions of the hospital s professional education program, in aviation medicine seminars and journal clubs, and in aviation medicine symposiums, conducted quarterly in turn at each of the residency sites

Air Command Aviation Medicine Portion In the air command aviation medicine portion the resident is given an opportunity to participate in the conduct and supervision of the aviation medicine and preventive medicine programs of a large command composed of many Air Force units and bases During this period under supervision his duties are as follows

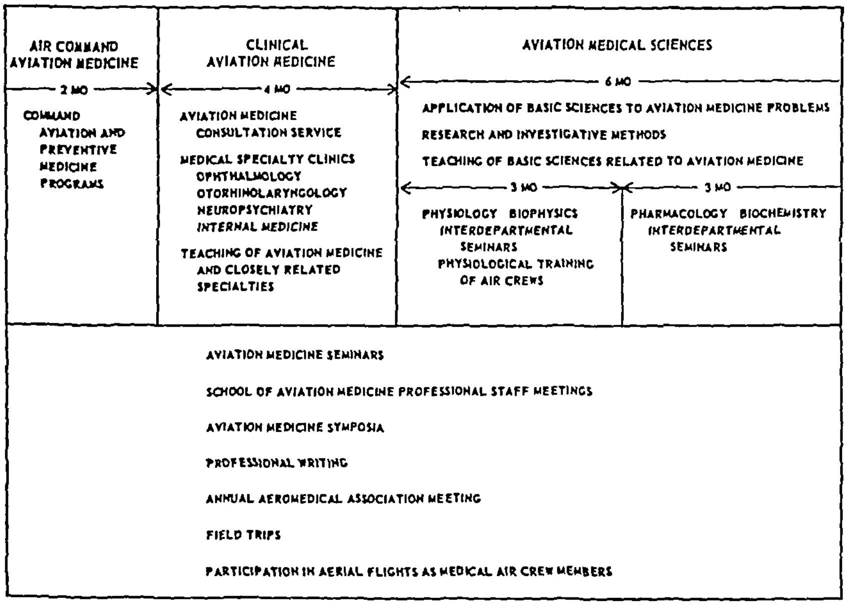
AIR COMMAND AVIATION MEDICINE
2 MO
COMMAND AVIATION AND PREVENTIVE MEDICINE PROGRAMS
CLINICAL AVIATION MEDICINE
4 MO
AVIATION MEDICINE CONSULTATION SERVICE
MEDICAL SPECIALTY CLINICS
OPHTHALMOLOGY
OTORHINOLARYNGOLOGY
NEUROPSYCHIATRY
INTERNAL MEDICINE
TEACHING OF AVIATION MEDICINE AND CLOSELY RELATED SPECIALTIES
AVIATION MEDICAL SCIENCES
6 MO
APPLICATION OF BASIC SCIENCES TO AVIATION MEDICINE PROBLEMS
RESEARCH AND INVESTIGATIVE METHODS
TEACHING OF BASIC SCIENCES RELATED TO AVIATION MEDICINE
3 MO
PHYSIOLOGY BIOPHYSICS
INTERDEPARTMENTAL SEMINARS
PHYSIOLOGICAL TRAINING OF AIR CREWS
3 MO
PHARMACOLOGY BIOCHEMISTRY
INTERDEPARTMENTAL SEMINARS
AVIATION MEDICINE SEMINARS
SCHOOL OF AVIATION MEDICINE PROFESSIONAL STAFF MEETINGS
AVIATION MEDICINE SYMPOSIA
PROFESSIONAL WRITING
ANNUAL AEROMEDICAL ASSOCIATION MEETING
FIELD TRIPS
PARTICIPATION IN AERIAL FLIGHTS AS MEDICAL AIR CREW MEMBERS

Fig 5 —Principal divisions of aviation medicine residency program of the U S A F School of Aviation Medicine (Randolph Air Force Base)

1 He reviews the air crew effectiveness and preventive medicine reports submitted by all bases of the command and, with the information obtained from them, prepares similar reports for the entire command

2 He reviews the reports of physical examinations submitted to this office

3 He recommends actions to be taken on requests for suspension or revocation of suspension for flying

4 He accomplishes liaison in regard to aviation medicine problems within the headquarters and with other Air Force and non-Air Force agencies

5 He makes staff studies of the aviation and preventive medicine programs of subordinate bases and provides consultation service to them on problems referable to these medical specialties

6 He assists in the establishment of policies and the preparation of command directives related to aviation and preventive medicine

School of Aviation Medicine Residency In September 1955, a third Air Force aviation medicine residency was established, at the School of Aviation Medicine, U S A F Although this residency has the same purpose and objectives as the other aviation medicine residencies, its program is organized differently in order to take advantage of several unique opportunities which the school can offer (fig 5) In comparison with the other residencies, greater emphasis is placed on basic sciences, investigative procedures, teaching, and the consultative practice of aviation medicine Much less time is devoted to unit, base, and command aircrew effectiveness and preventive medicine programs

Air Command Portion The air command portion of the school s residency program is conducted under the supervision of the crew training air force surgeon, whose headquarters is at Randolph Air Force Base The training offered during this period is similar to, but more compressed than, that of the other residencies

Clinical Portion In the clinical aviation medicine portion the resident assumes more closely the role of a "fellow" As such he acquires the responsibility for all aviation medicine problem cases referred to the school for consultation and participates in the studies conducted on the patient in each clinical department When all studies are completed, he prepares a clinical brief and presents the case with his recommendations to the staff In addition, he participates as an instructor in the several aviation medicine courses conducted by the school Also, he is given an opportunity to increase his knowledge and proficiency in the closely allied specialties by working in any of the clinics conducted by the departments of ophthalmology, otorhinolaryngology, neuropsychiatry, and internal medicine

Medical Science Portion The medical science portion of the School of Aviation Medicine residency offers a much more intensive opportunity for familiarization with techniques of research and investigation than the other residencies Emphasis is given to the application of the basic sciences to the solution of practical aviation medical problems which have arisen in the field In addition to these investigative activities the resident participates in regularly scheduled interdepartmental seminars on subjects related to aviation medicine

In approving of the residency program of the school, we were fully aware of its somewhat radical departure from the previously established pattern This action was thought justifiable on an experimental basis It is anticipated that it, like the others, will be modified in several respects as additional experience is acquired It is believed very desirable to have at least one residency with such rich opportunities in aviation medicine for training in teaching and investigation so that officers who have demonstrated interest and ability along these lines can be given an early opportunity to mold their career to those channels

Phase 4—Supervised Practice of Aviation Medicine — During this final phase of the Aviation Medicine Specialty Training Program, the officer is given an opportunity to apply the theories, fundamentals, and principles of aviation medicine, which he has been taught during the first three phases, to the practice of the specialty under close, expert supervision An extensive experience in all aspects—preventive, clinical, investigative, and administrative—is offered for a period of one to two years In a few selected cases, the second year of this phase may be spent in a fellowship which provides additional experience in research and/or teaching in aviation medicine or in a closely related scientific field, in a year of residency or fellowship in a clinical specialty closely related to aviation medicine, or in a special assignment which would enhance the person's training in a particular aspect of the specialty

In the majority of these supervised practice assignments, the officer is given the duties and responsibilities of the chief or assistant chief of the aviation medicine and preventive medicine divisions in the office of the surgeon of a major command or air force There also are a few assignments in which he may be given an opportunity to practice aviation medicine through research and/or teaching duties and responsibilities These provisions give the program additional flexibility and permit early channeling of an officer's training into the field of aviation medicine practice in which he has manifested interest and capability

In table 2 are listed some examples of the duties which officers perform during these supervised practice assignments on the staffs of command surgeons This experience would be comparable to that which one in a civilian program might receive as an assistant to the medical director of an airline or of a large aircraft manufacturing company

In addition to conducting the advanced course in aviation medicine (phase 2) and one of the residency programs (phase 3), the School of Aviation Medicine also is responsible for the operational support of the first three years (phases 1 through 3) of the program This consists of the coordination of all three years to eliminate undesirable repetition, of providing budgetary support, and of rendering advice and guidance upon request The aviation specialty training program as a whole is supervised by the surgeon general

In September, 1956, 20 medical officers were graduated from the complete U S A F Aviation Medicine Specialty Training Program, a total of 27 were enrolled in the first three phases of the program, and an additional 11 were in the supervised practice phase

Summary

Within the framework of the standards and essentials for education and training established by the Council on Medical Education and Hospitals of the American Medical Association and the Board of Preventive Medicine, the Air Force Medical Service has organized and conducted the first complete education and training program leading to certification in aviation medicine In so doing, many knotty and perplexing problems pertaining to the definition and practice of aviation medicine as a specialty and to the objectives, content, organization, and conduct of the program as a whole have been encountered The solutions that have been developed may not prove to be the final, true solutions, but experience to date suggests that the program is on the right track and that it is basically sound

TABLE 2—*Principal Types of Duties Performed During Supervised Practice Phase (Four) of Aviation Medicine Program*

As chief or assistant chief of aviation medicine in a major air command
1 Plan organize coordinate and supervise aviation medicine program of entire command
2 Act as consultant in aviation medicine for entire command
3 Review all base aircrew effectiveness and medical flight reports (where required) prepare the consolidated command report and initiate any corrective action indicated
4 Evaluate health status of command aircrew personnel and recommend measures to correct any problems
5 Investigate and recommend corrective measures for aviation toxicological problems
6 Participate in command flying safety program
7 Review all aircraft accident reports and initiate any action indicated to prevent recurrence of any human factors that may have contributed to the accident
8 Investigate and coordinate with proper staff agencies problems involving procurement evaluation proper use and maintenance of personal flying equipment
9 Evaluate all medical equipment used in aeromedical operations
10 Investigate aeromedical problems created by all types of aircraft assigned to the command
11 Participate in regular and frequent aerial flights as an aircrew member in all types of aircraft flown by command and render necessary reports on observations
12 Inspect evaluate and recommend improvements in medical portions of base crash rescue plans
13 Prepare training programs in first aid measures for instruction of air and ground crews crash rescue teams emergency vehicle drivers and other appropriate personnel
14 Inspect evaluate and assist in command physiological training and aircrew physical fitness programs
15 Review all unusual problems involving physical qualifications for flying and recommend proper action
16 Plan and supervise the command aeromedical research program
17 Keep abreast of aeromedical research by reviewing publications attending conferences and visiting the School of Aviation Medicine the aeromedical laboratory and other appropriate military and civilian aeromedical research centers
18 Maintain records on all aviation observers (medical) flight surgeons and aviation medical examiners assigned to the command
19 Participate in military and civilian medical meetings and when requested speak on subjects pertaining to aviation medicine
20 Make regular staff visits to command bases to
  (a) Gain first hand knowledge of local professional aeromedical and aircrew problems
  (b) Conduct aeromedical seminars for all aviation medical examiners, flight surgeons flight nurse and other interested staff members in order to
    (1) Disseminate new aeromedical knowledge
    (2) Promulgate newly established aeromedical policies and procedures
    (3) Encourage maximum effectiveness and devotion to duty of assigned *medical officers on flying* status
    (4) Further develop the *esprit de corps* of the flight surgeons of the command
    (5) Increase medical officer enrollment in the aviation medicine training programs

As chief or assistant chief of preventive medicine in a major command
1 Plan organize coordinate and supervise the preventive medicine program of entire command
2 Act as consultant in preventive medicine to entire command
3 Advise base preventive medicine officers in regard to
  (a) The investigation and control of outbreaks of communicable diseases and related problems such as environmental sanitation industrial medical problems insect and rodent control food service sanitation housing waste disposal and personal hygiene
  (b) The study and control of noninfectious mass disease and injury problems
4 Review all base preventive medicine reports analyze and prepare consolidated command preventive medicine reports including recommendations for corrective actions
5 Review preventive medicine publications attend conferences and keep abreast of preventive medicine research and developments
6 Initiate research and investigative projects in practical problems in preventive medicine arising within the command
7 Maintain liaison and coordinate activities with other military government and civilian authorities and agencies
8 Maintain appropriate statistical data and charts depicting the morbidity and mortality rates for all conditions affecting the health of the command
9 Prepare and promote education and training programs for the prevention of illness and improvement of the health of the command
10 Make regular and frequent staff visits to command bases to observe and assist local preventive medicine programs

Addendum

Since this article was written, the aviation medicine residency conducted at Langley Air Force Base has been discontinued and the one conducted at the U S A F School of Aviation Medicine at Randolph Air Force Base has been increased proportionately

Figures 1, 3, and 4 were supplied by the Armed Forces Institute of Pathology, Walter Reed Army Medical Center Washington, D C

EMERGENCY SERVICE WITHIN THE HOSPITAL

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• When respiratory difficulties develop in a hospital patient, the anesthesiologist should be called promptly. Emergency kits should be kept ready at all times in a central location. This report analyzes 100 consecutive cases in which anesthesiologists were called for help in emergency rooms, the nursery, the radiology department, and the medical and surgical wards of a 600 bed university hospital. The cause of the respiratory difficulty was neurological disease in 54 cases, poisoning or drug reactions in 17, cardiac disease in 11, and metabolic disturbances in 6. Among the neurological cases the most frequent trouble was cerebrovascular accident (21 cases) and head injury (10 cases). The insertion of an endotracheal tube was the most important method of treatment, and was carried out in 80 patients; positive pressure assistance of respiration with oxygen was required in 28. No reliance was placed on drugs as analeptics or respiratory stimulants; it is believed that this type of treatment is less than useless. Of the 100 patients in this series, 4 were dead when the anesthesiologist arrived, 14 died during the initial treatment, and 45 improved but died later as a result of their basic disease. Thirty-seven patients who had been in serious difficulty were saved by prompt calls for assistance and by the efficient use of emergency equipment.

Resuscitation is a field with which every physician should be familiar. Acute cardiovascular and respiratory problems may be an immediate threat to the life of the patient. The management of these emergencies may tax the skill of an expert and often requires training greater than that of the average intern or resident. Assistance in the management of these problems, ideally should be promptly available within the hospital.

The nature of the practice of anesthesiology is such that acute respiratory and circulatory problems are commonly seen and treated in the operating room. The anesthesiologist is usually in the hospital, he has the equipment, and he is both available and skilled in the techniques of resuscitation. He should, therefore, be called upon to assist in the treatment of those patients who develop acute respiratory or circulatory difficulties.

The role of the anesthesiologist in certain specialized types of respiratory problems has been discussed by others. O'Brien[1] and his co-workers described the part which the anesthesiologist may play in the treatment of the respiratory difficulties of poliomyelitis patients. An excellent survey of the various methods of infant resuscitation has been presented by Cook and associates.[2] Holinger[3] discussed the role of the laryngologist in the resuscitation of the newborn infant. These particular situations are important, but they give no idea of the frequency or wide variety of emergencies which occur in a general hospital.

This paper is based upon the resuscitation experiences of the department of anesthesiology in a 600-bed university hospital. Both the attending staff and the house staff know that prompt assistance in emergencies is available upon telephoned request. During the day a large group of anesthesiologists may be drawn upon for emergency calls. At all other times three trained individuals are in the hospital. Several emergency kits are in readiness at all times in a central location. These are equipped with endotracheal tubes, airways, laryngoscopes, drugs, needles, syringes, and a device for giving artificial respiration with oxygen (see figure).

Calls for assistance average one or two per day. In most instances the emergency calls involve problems of acute respiratory obstruction or depression. Occasionally, profound circulatory collapse is the major problem. In many instances there are combined difficulties. The anesthesiologist takes full charge of the immediate management of the acute respiratory problem and gives advice as to future treatment with regard to tracheotomy and the use of respirators and resuscitators. Return visits are made as frequently as necessary for the individual patient. A special record card is provided on which the data pertaining to the call are noted: patient's name, room number, hospital number, primary diagnosis, state of consciousness, condition of airway, blood pressure, pulse, treatment, and results of treatment.

In this paper we shall discuss 100 consecutive patients who had acute respiratory difficulties and for whom the department of anesthesiology was called for consultation and assistance in resuscitation. All these occurrences took place outside of the operating, delivery, and recovery rooms. Emergency calls were received from the emergency rooms, nursery of newborn infants, radiology department, and medical and surgical wards of the hospital. The age range of patients attended was from a few minutes to 86 years. The basic disturbances responsible for the emergency calls and the results of treatment are indicated in table 1.

Eighty-two per cent of the patients were comatose. The lesions most commonly encountered were disturbances of the nervous system, including cerebrovascular accidents, head injuries, cerebral edema after craniotomy, meningitis, epilepsy, cerebral metastasis, poliomyelitis, and tetanus. The cause of difficulty in the next most common cases was poisoning due to overdosage or idiosyncrasy to drugs. These reactions are enumerated in table 2. Cardiac and metabolic dis-

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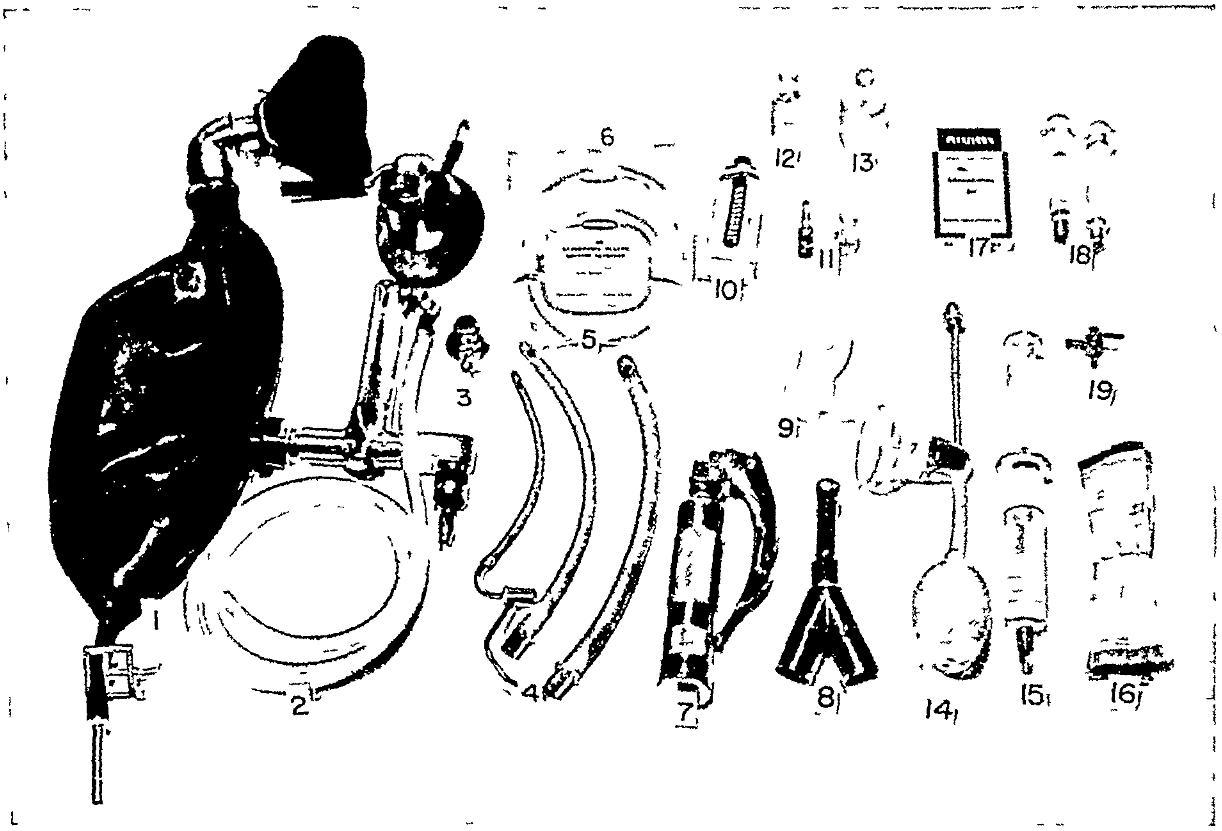
cases contributed 11 and 6 cases respectively The types of respiratory difficulties are indicated in table 3 The types of treatment given are indicated in table 4

Treatment

The insertion of an endotracheal tube was the most important method of treatment This was done in 80 patients for the purpose of establishing an airway so that pulmonary ventilation could take place In 84 instances the respiratory passages required cleansing with a suction catheter Oxygen was administered to 98 patients, and of these 29 received positive-pressure assisted respiration In 18 instances other medication was administered, including aminophylline, barbiturates, nalorphine hydrochloride, hexamethonium bromide, helium, isoproterenol (Isuprel) hydrochloride, and digitalis Bronchoscopy was necessary to clear the airway in two instances and was performed by the anesthesiologist Cardiac massage was done twice by members of the surgical service



Equipment in emergency kit (1) breathing bag and masks (2) oxygen flowmeter, (3) endotracheal tube adapter, (4) endotracheal tubes, (5) suction catheter, (6) oxygen catheter (7) laryngoscope, (8) adapter for gas machine (9) oral airways (10) anesthetic ointment (11) vasopressors, (12) succinylcholine (13) atropine solution (14) atomizer with local anesthetic agent (15) 2 5% thiopental (Pentothal) sodium, (16) sterile needles (17) tubing for intravenous administration (18) syringes and (19) three-way stopcock

Carbon dioxide was not used in any instance The old experimental work, which showed that carbon dioxide played a part in the control of respiration, led to the erroneous belief that it should be used as a respiratory stimulant Every individual constantly produces carbon dioxide as a metabolic waste product In all patients with respiratory difficulty an excess of carbon dioxide is present, and the aim of therapy is to decrease the acidosis, as well as to provide oxygen

Carbogen (a mixture of 5% CO_2 and 95% O_2) was used intermittently at the request of the attending physician for one patient who had carbon monoxide poisoning The rationale for its use in this instance is that the chemical affinity of hemoglobin for carbon monoxide is said to be decreased in the presence of acidosis, thus increasing the speed of excretion of carbon monoxide Schwerma and associates[4] have demonstrated in animal experiments that oxygen-carbon dioxide combinations have no superiority over oxygen alone and, furthermore, that carbon dioxide-oxygen mixtures tend to increase the acidosis already present, so that it may actually do harm to the patient Goodman and Gilman[5] state that the dissociation of carboxyhemoglobin is greatest in the presence of pure oxygen

Comment

The treatment of shock due to injury, blood loss, or cardiac disease is well understood by members of the hospital intern and resident staff and usually is well managed On the other hand, the treatment of respiratory disturbances is too often misunderstood Many physicians still rely upon the subcutaneous administration of stimulant or analeptic drugs, which are of little value even when given intravenously and which are of no value and even may be harmful if the airway is obstructed When one considers the delay incident to obtaining the drugs, the slowness of absorption from subcutaneous sites, and the general inadequacy of these drugs in serious conditions, it is clear that this type of treatment is less than useless Indeed, reliance upon drugs introduces delays in therapy which may well be fatal to the hypoxic or the asphyxiated patient

TABLE 1 —*Etiology of Acute Respiratory Difficulty*

	Cases No	Dead On Arrival	Died During Treatment	Improved Then Died of Basic Disease	Recovered
Neurological disease	54	3	5	29	17
Cerebrovascular accident	21	2	1	15	3
Head injury	10			5	5
Postcraniotomy difficulty	7		2	4	1
Bulbar poliomyelitis	2			2	
Epilepsy	2				2
Quadriplegia	2				2
Meningitis	2		1	1	
Fever (convulsions)	2				2
Miscellaneous	6	1	1	2	2
Poisoning and drug reaction	17	1		1	15
Cardiac disease	11		3	7	1
Metabolic disturbances	6		1	5	
Uremia	3			3	
Hepatitis	2			2	
Diabetes	1		1		
Miscellaneous	12		4	3	5
Peritonitis	1		1		
Perforated ulcer	1				1
Burn	1			1	
Carcinoma of pancreas	1		1		
Postoperative debility	1			1	
Pulmonary insufficiency	1			1	
Tracheobronchitis	1				1
Bleeding peptic ulcer	1		1		
Leukemia	1				1
Infant—aspiration of food	1				1
Hyaline membrane disease	1		1		
Tracheal compression	1				1

In most instances of respiratory disturbance it is necessary to provide a clear airway and to remove secretions, vomitus, blood, or other foreign material from the upper respiratory tract and often from the tracheobronchial tree It is usually necessary to provide oxygen and often to give assisted or artificial respiration to the patient, until his brain has sufficiently recovered from hypoxia so that the respiratory center may again initiate and maintain adequate spontaneous respiration

TABLE 2 —*Poisonings and Drug Reactions*

	Cases No
Carbon monoxide	3
Tetracaine (Pontocaine) hydrochloride	3
Barbiturate	2
Meperidine (Demerol) hydrochloride	1
Salicylates	1
Atropine	1
Picrotoxin	1
Boron hydride	1
Smoke	1
Bromidism	1
Diatrizoate (Hypaque) sodium	1
Unknown	1
Total	17

Frequently, at the time of arrival of the anesthesiologist, the situation may look hopeless Nevertheless, prompt, skilled, and persistent attention to the patient results in an appreciable salvage rate Of the 100 patients mentioned in this paper, 4 were dead at the time the anesthesiologist arrived and 14 died during the initial treatment, 45 patients improved with therapy but died later as a result of their basic disease Thirty-seven patients recovered from the immediate difficulty and also completely recovered from the basic disturbance When one considers the serious condition existing at the time, this represents a surprisingly high survival rate The salvage rate can undoubtedly be improved by early recognition of respiratory difficulty and prompt calling of the anesthesiologist for assistance These calls should be made by the first person (nurse, aide, or orderly) who sees the trouble and before the intern or the resident or attending physician is notified This policy will result in a number of false alarms, but it will also result in saving the lives of some seriously ill patients

TABLE 3 —*Types of Respiratory Problems*

	Cases No
Tongue and soft tissue obstruction	57 (6 conscious)
Convulsions	16 (3 conscious)
Apnea	12 (2 conscious)
Aspiration	8 (2 conscious)
Decreased pulmonary ventilation	7 (4 conscious)
Total	100

Summary

In the emergency service of the department of anesthesiology in a 600-bed hospital, emergency calls have averaged one or two per day Of 100 patients who required assistance, 82 improved with treatment Forty-five patients died later of their basic disease, and 37 made a complete recovery and left the hospital That the survival rate was unexpectedly high is attributed to the fact that other services have learned to call for assistance promptly It is suggested that in all institutions the anesthesiologist be called more frequently and more promptly to assist in managing respiratory difficulties

TABLE 4 —*Types of Treatment*

	Cases No
Endotracheal intubation and oxygen	80
Oxygen by mask and breathing bag	18
Suction of air passages	84
Total receiving oxygen	98
Miscellaneous cardiac drugs vasopressor sedatives ganglioplegics	21

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ROLE OF BED REST IN TREATMENT OF RHEUMATIC FEVER

REVIEW OF LITERATURE AND SURVEY OF CURRENT OPINIONS

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• Sixteen specialists in rheumatic fever independently contributed opinions as to the role of bed rest in the treatment of this disease None were able to cite adequate, long term, well controlled studies comparing the course of patients whose treatment had included a rigid regimen of bed rest with the course of patients who had been given more liberty None had made such a controlled study themselves, and three indicated that they had no experience with treatment other than strict bed rest None felt that they had seen evidence that the known ill effects of absolute bed rest on other types of subjects tended to delay recovery in patients with rheumatic fever, but several mentioned the emotional effects of strict bed rest The most decisive criterion for allowing increased activity was stated as (1) subsidence of the acute debilitating symptoms, by five physicians, (2) downward trend of laboratory signs, by five other physicians, and (3) disappearance of all signs of inflammatory activity and freedom from recurrence of symptoms after cessation of steroid and aspirin therapy, by six physicians All agreed that they would prescribe absolute bed rest in acute rheumatic fever with manifestations of arthritis and carditis with heart failure, but differed as to the strictness and duration of the bed rest in the absence of heart failure or signs of carditis There was a diversity of opinions as to the hypothetical case of a patient with inactive rheumatic fever, an organic apical systolic murmur, and no cardiac enlargement, but eight physicians stated that they would allow all normal activity except for competitive sports

For many years, rest has been the keystone of treatment of acute rheumatic fever as well as many other diseases Limitation of physical activity in varying degrees has also been considered of paramount importance in the convalescent stage At the present time, the concept of importance of strict rest in many types of illnesses is undergoing revision In the management of tuberculosis, for example, the emphasis on strict bed rest is decreasing in the presence of new methods of therapy This is true also in many febrile illnesses Even in the treatment of coronary thrombosis, bed rest is being replaced by the 'chair treatment' It seems, therefore, that the importance of rest, in both the acute and convalescent phases of rheumatic fever, needs reevaluation In those rheumatic patients under treatment with cortisone or corticotropin (ACTH) in whom all signs of inflammation appear to be suppressed, the role of rest is not clear It seemed of value, therefore, to report a review of the literature in regard to bed rest in rheumatic fever In addition, it was decided to poll the opinions of a group of authorities in the field from the United States, United Kingdom, and France, thereby providing some data as to what is currently considered good management in this regard in various centers in the United States and abroad

Review of the Literature

It is of interest that rest was not considered of great importance in the early writings concerning rheumatic fever It is probable that this was due in part to the fact that the diagnosis of rheumatic fever as an entity was usually not well established and that the possibility that carditis might be present in a subclinical form in cases of polyarthritis was not fully appreciated For instance, Earp,[1] in 1909, in discussing 12 patients with acute rheumatism, reported that none were confined to bed for more than 10 days Two of the patients probably had acute carditis However, a few years later the emphasis upon prolonged and strict bed rest had become accepted Scott,[2] in 1915, stated that bed rest was the most important aspect of therapy and suggested that the duration of the rest be influenced by the severity of the disorders such as arthritis, carditis, chorea, and anemia He also advised a prolonged convalescence and believed that even after recovery unusual activity or excitement might cause a new attack in the rheumatic individual Although no objective data were presented at the time to support the belief that rest was of extreme importance, the opinion has continued to prevail, with very few exceptions, up to the present time

Strict Bed Rest—No good controlled studies are available to either support or deny the opinion of the importance of rest Most authors rely on personal experience to support their belief that absolute bed rest is of paramount importance in acute rheumatic fever Practically all articles discussing the therapy of rheumatic fever outline very much the same conservative regimen, with a few notable exceptions The intensity with which bed rest was recommended probably reached its peak during the 1920s, as exemplified by Raven's [3] recommendations in 1924 At that time, Raven suggested complete bed rest until signs of rheumatic activity had subsided and advised increasing physical activity by only 15 minutes daily during the convalescent period Sheldon's [4] advice in 1938 is still frequently quoted He also suggested that absolute

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Clinical Assistant in Medicine (Dr Duman), Assistant Professor of Pediatrics and Acting Head of the Department (Dr Githens) and Director of Denver Rheumatic Fever Diagnostic Service and Instructor in Medicine (Dr Hoffman), University of Colorado School of Medicine rest is essential and that even those patients with unrecognized carditis should have a minimum of one month of complete rest.

In more recent review articles[5] on the therapy of acute rheumatic fever, the same opinion is held in regard to both therapy in the acute phase of the disease and that in the convalescent stage. Bed rest has been listed as a time-honored treatment by these authors for the following reasons: 1. It decreases the work of the heart and thus prevents impending heart failure or perhaps aids the recovery from failure that is already present. This view has recently been challenged in the comparison of "chair treatment" with bed rest in other cardiac disorders.[6] 2. It may play a role in preventing permanent cardiac damage. For instance, Raven[4] states that in his experience progressive involvement of the heart may occur unless prolonged rest is prescribed. 3. It shortens the course of the rheumatic process. Although no controlled studies seem to be available to support this fact, many authors such as Cahall[5a] believe that rest does shorten the course of the disease. Cahall compares rheumatic fever with tuberculosis, stating that the primary purpose of rest in both diseases is to render the process inactive. Black[7] has stated that "everyone has seen exercise increase the extent of the infection if the rheumatism is not in the quiescent stage." 4. It may prevent recurrences. Black[7] believes he has seen many relapses or recurrences when activity was increased two to three months after the onset of the disease. This point does not seem well documented.

Only one clinical study has been found which might provide support for the opinions listed above. Kurtz[8] reported on a series of 96 patients treated with an extremely conservative regimen with absolute rest during the entire period of rheumatic activity. The program of convalescence was also a very gradual regimen. The results were interpreted as showing only 3 of the 96 patients, or 3.1%, developing any conclusive evidence of new or increased valvular deformity. Unfortunately, the first-attack cases were not listed separately, and there was no true control group or long-term follow-up.

Conservative Treatment.—In general, even in the armed forces during World War II, a fairly conservative approach was usually taken in treatment of acute rheumatic fever during the active stage, although the approach to the convalescent phase was considerably more radical.[9] However, Robertson and co-workers[9a] reported their experience with 200 rheumatic patients in the Army in whom early ambulation was used. They felt that the evidence in favor of strict rest had not been absolutely established and that the anxiety neuroses which developed (particularly in young males in the armed forces) suggested that considerably more harm than good might be done both physically and mentally to the individuals by enforcing a strict regimen. It was their impression that bed rest was often not the ultimate in achieving maximum rest. More freedom on the ward allowed more actual rest by promoting physical comfort and emotional relaxation.

The patients were permitted some physical activity within the first 24 hours if physical discomfort did not prohibit it. Such activity was allowed even in cases of active carditis if heart failure was not present. Dyspnea or fatigue was used primarily as a guide to the maximum activity that was desirable. Physical activity consisted essentially of bathroom privileges, sitting in a chair, and walking about the ward as desired. During the subsiding stage of the disease, the patients also walked outdoors. Unfortunately, no definite statistics are given, particularly in terms of residual cardiac damage. However, it was believed that the rheumatic process itself subsided just as rapidly as in patients on a regimen of strict bed rest.

Since acute rheumatic carditis has never been reproduced experimentally, it has not been possible to use the experimental approach to either prove or disprove the time-honored concept of rest therapy in acute rheumatic fever. A few studies tend to point out some of the ill effects of bed rest. Harrison[10] demonstrated that in heart failure pulmonary edema tends to occur more readily if the patient is in the recumbent position. In his study with Thomas,[11] using rats in which myocardial damage had been produced by thermal injury to the left ventricle, there was a considerably higher mortality in those rats whose physical activity had been limited than in those who had been allowed to limit their own activity. In recent studies in rheumatic fever, Johnston[12] presented evidence that prolonged bed rest influences adversely the retention of nitrogen and calcium. Very moderate degrees of activity offset this.

The recommendations for rest in the convalescent period have shown a less conservative approach in the last few years, although there is still considerable disagreement in this regard. Taran[13] has for many years been a proponent of the use of the sanitarium for convalescent care. It has been his impression that recovery is more rapid and the incidence of recurrence lower with a prolonged convalescence in the sanitarium. It is interesting to note, however, that in recent years[5c] he has been recommending a shorter period of convalescence than the 8 to 10 months recommended in 1943.[13b] There has been a growing appreciation of the fact that the heart is damaged, as time passes, not by ordinary physical activity but by progressive inflammation of the rheumatic process itself aggravated by recurrences.[14]

Rehabilitation.—Most authors are now impressed with the medical and physical invalidism that has resulted from overemphasis upon physical rest in the convalescent period. This fact was well established in the armed forces during World War II. In the Navy[9b] and in the Army Air Forces,[15] a physical training and vocational rehabilitation program was arranged for the convalescent period to demonstrate to the patient (prior to his returning to duty) that he was able to carry out rigorous exertion without difficulty. Once evidence of rheumatic activity had disappeared, the patient was moved rapidly through a program of increasing activity that was finally comparable to full duty. The Navy experience seemed to show that a period of approximately nine weeks of gradually progressing physical activity was usually sufficient

The War Department memorandum, published in 1944,[16] seems worthy of review since it now has stood the test of time It reads as follows "Physical activity after recovery The patient who has made a satisfactory recovery from rheumatic fever can be assured, once he is physically fit, that limitation of physical activity is not helpful in protecting against additional attacks of subsequent heart disease and, therefore, is not indicated It is important that this be made clear because the concept is so widely held that limitation of activity is essential in any condition which has any relation to cardiac injury"

For the individual with inactive rheumatic fever, limitation of physical activity often has been prescribed for many years Although it has been suggested in the past that normal physical activity may lead to recurrences or to progression of heart disease, this has little support when considered in the light of our present knowledge regarding the role of streptococcic infections Progression of heart disease is probably due to either smoldering rheumatic activity or recurrences It is generally advised that no limitation of physical activity be placed upon the child who recovers from his initial attack with no evidence of valvular heart damage For the individual who has residual valvular lesions, there is more disagreement in regard to the effects of physical activity However, the present trend in this regard is to allow the individual to restrict his own activity

In the armed forces,[15] it was shown that most individuals with early rheumatic heart disease have no loss of cardiac reserve and are capable of as much physical exertion as a normal person Eisenberg and co-workers[5b] showed that the results of exercise-tolerance tests at a children s camp for inactive cardiac patients did not differentiate between children with rheumatic heart disease and normal children Cardiac intolerance was seen only in those children with congenital heart disease He also found no correlation between cardiac enlargement and exercise tolerance After 20 years' experience with children with inactive rheumatic heart disease, it was Eisenberg's impression that children who show exercise intolerance have an active rheumatic process He believes that each child seeks or reaches that level of play which is comfortable and gratifying The real danger to such a child is not play or exercise but recurrent streptococcic infection Gibson[17] agrees that children with rheumatic valvular disease should be allowed to exercise without restriction, although they should stop short of actual fatigue He is impressed that one obtains much better cooperation with such recommendations, since the child who is being constantly nagged will become rebellious and do exactly what is forbidden

Survey of Opinions

A survey was conducted among a group of authorities in the field of rheumatic fever practicing in leading medical centers in the United States, United Kingdom, and France regarding their present opinions of the role of bed rest in rheumatic fever therapy Specific questions concerning the use of absolute bed rest (confined to bed 24 hours per day), modified bed rest (allowing bathroom privileges, sitting in chair, walking about the ward), and limited activity (confined to house with rest periods in the morning and afternoon) were included in a questionnaire which each was requested to answer Of 20 physicians contacted, 16 replied

In the following paragraphs are the questions asked and a tabulation of the opinions expressed in response to each question

1 Are you aware of any good reports (involving such material as long-term follow-up studies and information on adequate controls) on the evaluation of absolute bed rest in active rheumatic fever? Of the 16 physicians replying, none were aware of controlled studies Reference was made to follow-up studies of a limited nature which tended to suggest a better outcome in patients treated with a rigid regimen of bed rest

2 What briefly is your experience as regards residual cardiac damage in patients with active rheumatic fever treated with absolute or modified bed rest in comparison with limited activity? Six physicians felt that they had no evidence that a rigid regimen is better than limited activity as regards residual cardiac damage Three indicated that they had had no experience with treatment other than absolute bed rest and hence did not wish to express an opinion Seven held the opinion that bed rest tends to prevent residual cardiac damage The following clinical evidence was cited by them First, follow-up studies have seemed to indicate better results in those treated with bed rest Second, progressive cardiac enlargement has occurred in some patients not kept on bed rest Third, the fact that one-half of the patients with rheumatic heart disease cannot give a history of rheumatic fever might indicate that bed rest makes the difference Most of the physicians indicated that the prevention of recurrence of rheumatic fever was probably a more important factor in preventing residual cardiac damage than the factor of bed rest

3 Have you any evidence that the ill effects of absolute bed rest, i e, negative nitrogen balance, loss of calcium, and psychological invalidism, contribute to a more prolonged course of the disease? None felt that they had any good evidence that this was a factor in prolonging the organic course of the disease Several expressed the opinion that the emotional effect of strict bed rest was an important factor in the total welfare of the patient, however

4 If you confine your patients with active rheumatic fever to absolute bed rest, what are your criteria for allowing increased activity? Five physicians increased the patient's activity as soon as the acute debilitating symptoms, i e, fever, malaise, arthralgia, and heart failure, subside Five would increase activity when a downward trend of such laboratory signs as the sedimentation rate and C-reactive protein level was es-

tablished Six would wait until all signs of inflammatory activity (i e, absence of symptoms, normal sedimentation rate and mucoprotein value, disappearance of C-reactive protein) had disappeared after therapy with steroids or aspirin was stopped before allowing increased activity Several of those questioned indicated that they tend to be more liberal with activity than they were several years ago

5 Given a patient with acute rheumatic fever with manifestations of arthritis and carditis with heart failure, what rest program would you advise? All indicated they would prescribe absolute bed rest Given a patient with arthritis and only mild carditis without failure, what rest program would you advise? Twelve would prescribe absolute bed rest Four would allow modified bed rest Given a patient in whom the disease was seemingly limited to the joints with no evidence of carditis, what rest program would you advise? Eleven would prescribe absolute bed rest (although for a shorter period) Three would prescribe modified bed rest, and two would allow limited activity

6 Given a patient with inactive rheumatic fever who has an organic apical systolic murmur with no cardiac enlargement, what activity would be advised? Would competitive sports be allowed? Seven would impose no limitation (several of these suggested waiting 12 months before allowing competitive sports) One would limit activity for one year and restrict competitive sports for two years after the attack Eight would allow all normal activity except for competitive sports One of these physicians stated that, although he does not advise competitive sports, he did not feel certain that this restriction should be imposed

Summary

In a review of the literature and a questionnaire survey of specialists in rheumatic fever, no objective proof was found to indicate that strict bed rest is necessary for a satisfactory convalescence in acute rheumatic fever In spite of this lack of objective proof, most workers in the field, including those authorities questioned, hold the opinion that maximum rest is still an important aspect of the therapy of active rheumatic fever, these opinions being based on clinical impression In the presence of carditis, most physicians feel that absolute bed rest is indicated Also most agree that bed rest should be continued until all or most of the signs of activity have disappeared

However, many authorities are beginning to question the necessity of strict programs and are tending to liberalize rest regimens, allowing earlier ambulation at the present time than several years ago and allowing more activity during the convalescent period This is thought to result in less emotional trauma to the patient It is generally agreed that the patient with inactive rheumatic fever should not be drastically restricted in his activity Of the authorities questioned, all agree to allowing normal activity, although approximately one-half of these would prohibit competitive sports in the presence of a residual murmur

A controlled study of different rest regimens with long-term follow-up has not yet been made This would be very difficult to carry out and would require many years to complete, but it might yield important objective information concerning the role of bed rest in rheumatic fever

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The specialists who replied to questionnaire in survey of opinions concerning bed rest in rheumatic fever were Rachel Ash, M D, Boston, Edward E Fischel, M D, New York, Stanley Graham, M D, Glasgow, R S Illingsworth, M D, Sheffield, England, John D Keith M D, Toronto, Canada, Vincent Kelley M D, Salt Lake City, Ann Kuttner, M D, New York, Jacqueline Labesse Paris Hugh McCullough, M D, Chicago, Currier McEwen, M D, New York, Benedict F Massell, M D, Boston Milton Saslaw, M D, Miami Beach, Fla, B E Schlesinger, M D, London, Leo M Taran, M D, Roslyn, N Y, A G Watkins, M D, Cardiff, England, and May Wilson, M D, New York

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CHRONIC THYROIDITIS AND AUTOIMMUNIZATION

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• *An explanation of chronic thyroiditis in man was sought in observations made on rabbits, dogs, guinea pigs, and human subjects The rabbits received injections of saline extracts of rabbit thyroid glands The tests for circulating autoantibodies utilized the phenomena of precipitation, complement fixation, and tanned cell hemagglutination The third of these, based upon the principle of altering the surface of the red blood cells by dilute tannic acid so that they absorb proteins, was particularly sensitive The three tests were applied to serums from 35 rabbits injected with rabbit thyroid extract, and thyroid autoantibodies were found in 32 Structural damage was found in the thyroid roughly in proportion to the autoantibody titer in the serum Similar studies were carried out in dogs and guinea pigs with canine and guinea pig thyroid extracts respectively The three tests were then applied to serums from patients with chronic thyroiditis Twelve such patients were found whose serums contained circulating antibodies specifically directed against extracts of human thyroid glands Three typical case histories are given, with histological findings on thyroid tissue removed during surgery Six other patients with chronic thyroiditis, proved histologically, were not found to have autoantibodies in their serums at the time of study These findings lead to the hypotheses that some types of chronic thyroiditis are related to an autoimmunization process within the patient against his own thyroid tissue, and that thyroid autoantibodies are at once indicators and links in the chain of pathological processes*

For many years only foreign proteins were considered to be true antigens Horse serum, for instance, proved to be a powerful antigen when injected into human beings, but it did not elicit antibody formation when injected into horses Conversely, human serum injected into horses elicits antibodies to human serum, but its failure to act as an antigen when injected into humans constitutes the basis of the therapeutic usefulness of human plasma and human albumin Landsteiner's discovery of the human blood groups revealed the fact that agglutinins directed against blood group factors within the human race but not within the same individual are present in human serums Such antibodies have been called isoantibodies Ehrlich and Morgenroth succeeded in producing isoantibodies in goats by injecting certain goats with red blood cells of other goats, thus producing immune isoantibodies Attempts to immunize goats against their own red blood cells, however, did not succeed The inability to produce antibodies against constituents of one's own body was interpreted by Ehrlich as the expression of a biological law referred to by him as "horror autotoxicus' Our ever-increasing knowledge of isoimmunization is based upon the recognition of the refusal of the living body to produce autoantibodies

In recent years the pathogenesis of several diseases has been ascribed to an interaction between supposed autoantibodies and antigens present in the tissues Most conspicuous among a number of diseases in this category are certain blood dyscrasias, frequently referred to as "autoimmune blood diseases' Several observations, indeed, seem to support this concept, such as the positive direct Coombs test in acquired hemolytic anemia The experimental evidence, however, is still incomplete Yet there are several known instances where autoantibodies have been produced experimentally, such as by the injection of brain tissue Rabbit brain, for example, when emulsified in Freund adjuvants and injected into rabbits, after an incubation period of a few weeks, will frequently lead to damage in the animal brain referred to as allergic encephalomyelitis[1] The nature of the antigen involved here is not quite clear but according to some investigators it is a proteolipid Recently Freund and co-workers[2] have produced aspermatogenesis in guinea pigs by immunizing them with spermatozoa of the same species

A protein known to be specific for the organ from which it is derived is thyroglobulin, as described by Hektoen, Fox, and Schulhof[3] in 1927 More recently, even crude thyroid extracts have been found to produce antiserums that are specific for thyroid extract, presumably due to their high thyroglobulin content[4] Because of the unusual immunological position of thyroglobulin, we tried to test the validity of Ehrlich's "horror autotoxicus' law in this case by injecting experimental animals with thyroid extract of their own species

Experimental Studies in Animals

Rabbits—Saline extracts of rabbit thyroid glands were prepared as has been described in detail in previous publications[5] The immunization procedure consisted of the injection of 0 05 ml of an emulsion containing equal parts of the thyroid extract and Freund adjuvants (*mixture of mineral oil and Arlacel* [main ingredient, mannide mono-oleate], containing killed Mycobacterium butyricum or M smegmatis) into each of the footpads of the rabbits In some instances, a second and even a third set of intradermal injections of 0 1 ml of antigen emulsion into each of four sites on the back of the rabbit was given Dogs and guinea pigs were treated in essentially the same manner, using pooled thyroid extracts of the respective species

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For the demonstration of circulating antibodies, three major serological procedures were used (1) precipitation, (2) complement fixation, and (3) tanned-cell hemagglutination The precipitation test, carried out by mixing undiluted rabbit serum with serial dilutions of thyroid extract, though positive in some instances, proved to be the least sensitive technique In addition, nonspecific precipitation was occasionally observed, when mixtures of thyroid extract and normal rabbit serum were allowed to stand for longer periods of time, such as overnight at 4 C The complement fixation test, performed in the manner previously described,[6] was more successful in our hands Nineteen out of 50 rabbits studied (38%) were positive The tissue specificity of the complement-fixing antibodies was examined by testing them with normal rabbit serum and with saline extracts, prepared in the same manner as the thyroid extracts, of the following rabbit organs liver, spleen, pancreas, heart, lung, kidney, and adrenal None gave any significant reaction, in contrast to the thyroid extract, which fixed complement even in high dilutions In a later phase of our investigations the tanned-cell hemagglutination test was also used This test, introduced by Boyden,[7] is based upon the principle of altering the surface of red blood cells by diluted tannic acid so that they absorb proteins Coated tanned cells are then agglutinated specifically by antibodies directed against the protein used for coating Of 35 serums of rabbits injected with rabbit thyroid extract examined by this technique, 32 (91%) revealed the presence of thyroid antibodies, in some instances exhibiting titers 10 to 100 times as high as those obtained when tested by complement fixation

In order to study further the organ specificity of antiserums obtained by injecting rabbits with rabbit thyroid extracts, the rabbit antiserums were tested with thyroid extracts prepared from more than 20 individual rabbits All thyroid extracts when examined either by complement fixation or hemagglutination reacted principally alike In some instances, the thyroid gland was removed from the rabbits before immunization with pooled thyroid extract was initiated Antiserums produced in this way, when examined serologically, gave equally strong reactions with extracts of the thyroid gland from the antibody-forming animal itself The antigenicity of extracts of the thyroid gland for the same individual rabbit was further investigated by subjecting rabbits to total thyroidectomy and injecting them with an extract of their own thyroid gland Of 15 rabbits treated in this way, the serums of 4 were positive on complement fixation tests, and 7 out of 10 gave positive hemagglutination reactions with rabbit thyroid extract, proving the potential antigenicity of the thyroid extract for the same rabbit

After rabbit thyroid extracts were found to be antigenic for the rabbit itself, the question arose as to which constituent of the crude thyroid extract was responsible for immunization Purified rabbit thyroglobulin was prepared in our laboratory by Dr Sidney Shulman, by carefully using ammonium sulfate precipitation [8] By ultracentrifugal criteria, the preparation contained 88% thyroglobulin Thyroglobulin was injected into the footpads of six rabbits in the usual manner Antibodies were demonstrable in some of the animals three weeks after injection Two months after injection the animals were killed, and their serums were examined for the presence of rabbit thyroid antibodies by means of the tanned-cell hemagglutination test Table 1 shows the agglutination observed after the tubes remained overnight at 4 C

All six rabbits had developed antibodies against rabbit thyroid extract after a single set of intradermal injections of a total of only 0 1 ml (0 27 mg) of purified rabbit thyroglobulin It might be added that two of the six rabbit serums (419 and 422) also contained complement-fixing antibodies These findings pointed to thyroglobulin as the constituent of rabbit thyroid extract responsible for immunization of rabbits against rabbit thyroid extract

As previously reported,[9] injection of crude rabbit thyroid extract causes damage to the thyroid gland of the antibody-producing animal itself We then wondered to what extent the immunization with purified thyroglobulin brought about comparable changes, and, therefore, the thyroids of immunized rabbits were examined histologically The rabbits were exsanguinated, and the thyroids were removed, fixed in buffered formaldehyde, and stained with hematoxylin and eosin The extent of distinct structural changes seemed to correlate roughly with the antibody titer Typical examples of varying degrees of such changes are seen in figures 1 and 2 Figure 3 shows the thyroid gland of an animal (rabbit 410) injected with rabbit serum instead of rabbit thyroglobulin and depicts the normal thyroid pattern The findings in this rabbit served as a control

TABLE 1 —*Data on Agglutination of Thyroid Coated Human Erythrocytes by Serums of Rabbits Immunized with Purified Rabbit Thyroglobulin*

Dilutions of Rabbit Serum	Rabbit No *					
	417	418	419	420	421	422
1 5	++++	+++	++++	+++	+++	++++
1 10	+++	+++	++++	++	+++	++++
1 20	+++	+++	+++	++	+++	+++
1 40	+++	++	+++	++	+++	+++
1 80	++	++	+++	++	++	+++
1 160	++	++	++	—	++	+++
1 320	+	+	++	—	++	++
1 640	—	—	++	—	—	+
1 1 280	—	—	++	—	—	+
1 2 560	—	—	++	—	—	—
1 5 120	—	—	—	—	—	—

* Normal rabbit serum gave negative reaction in all dilutions

Sections of the thyroids of these two rabbits, 417 and 419 (fig 1 and 2), showed various degrees of disruption of the colloid follicular pattern The cellular infiltrations between the follicles consist of lymphocytes, eosinophilic leukocytes, and plasma cells The eosinophilic cells are especially prominent in the capsule In the more intensely and diffusely inflamed thyroid of rabbit 419 there is slight fibrosis and a few nodules consisting of lymphocytes The histological changes in the thyroids of rabbits immunized with isolated rabbit thyroglobulin are similar to those in rabbits immunized with whole thyroid extract, as previously described [5]

Dogs—In addition, four dogs received in all four footpads an initial series of intradermal injections of dog thyroid extract incorporated into Freund adjuvants One animal developed a strong circulating thyroid antibody that was demonstrable by complement fixation It died suddenly, and no autopsy was performed The other three dogs showed no circulating antibodies and were reinjected intradermally into the skin of the back twice, each time a total of 0 4 ml being given in four different sites At the end of nine months, still no circulating antibodies of significant titer were demonstrable The dogs were then killed On postmortem examination, the thyroid glands of all were found to be hard and small

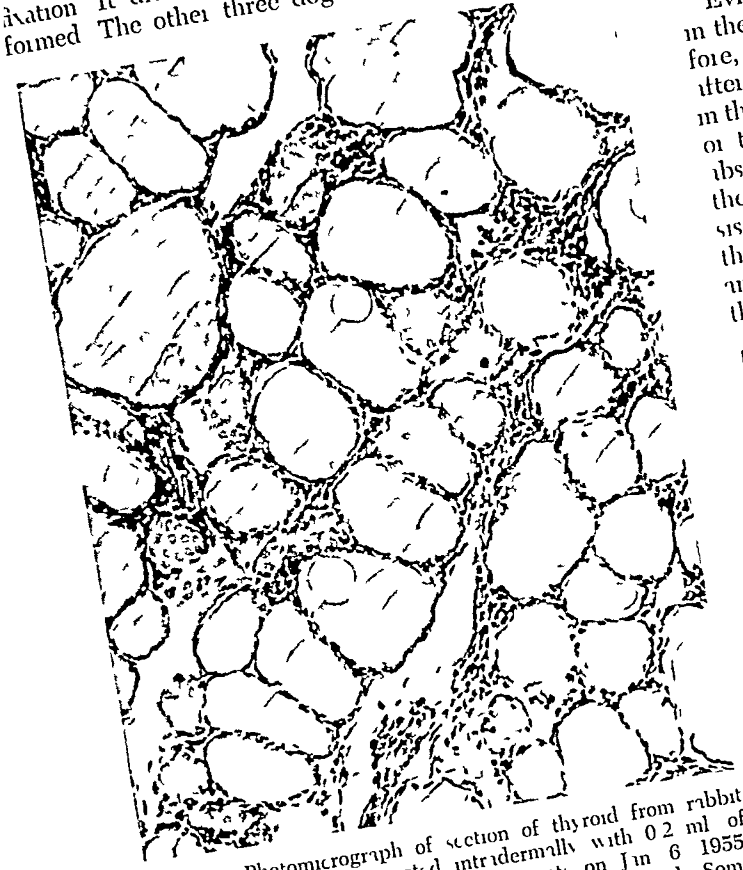

Fig 1—Photomicrograph of section of thyroid from rabbit 417 which had been injected intradermally with 0 2 ml of rabbit thyroglobulin and Freund adjuvants on Jan 6 1955 showing infiltration between acini filled with colloid Some epithelial desquamation in intimate connection with interstitial infiltration can be seen in several areas Rabbit was killed on March 29 1955 (× 190)

Dog 1184 The dog was given an intradermal injection of 0 4 ml of a pooled crude dog thyroid extract on Sept 20 1954 with 0 5 ml with Freund adjuvants added (omitting acid-fast bacilli) on Dec 24 1954 and with 0 5 ml with Freund adjuvants on Jan 28 1955 On May 23 1955 the dog was subjected to thyroidectomy At the time of operation the dog weighed 26 lb (11 8 kg), and the left thyroid weighed 0 4 Gm and the right thyroid 0 6 Gm On histological examination the entire lobe of the thyroid was found to be diffusely infiltrated by lymphoid cells here and there more densely arranged, forming ill-defined nodules and numerous disintegrating leukocytes The acini were diminished and contained very thin colloid or leukocytes, desquamated epithelium and lymphoid cells Most of the original acinar pattern was completely masked by the dense cellular infiltrations In addition there was distinct increase of collagenous fibers and a striking change of the original colloid follicles to small or even solid follicles with prominent epithelium and vacuolated cytoplasm Such areas contained little or no colloid and resembled solid parenchymatous proliferations of thyroid epithelium The interstitial inflammatory changes were most marked in the periphery and seemed to extend into the capsule of the thyroid in which distinct fibrous thickening was noticed The leukocytic infiltration of the more solid parenchymatous areas was as prominent as that in other fields of the thyroid where some acini were still preserved (fig 4)

Evidently, changes of considerable extent occurred in the thyroids of the dogs We might conclude, therefore, either that severe damage to the thyroid glands after injection with thyroid extracts can occur, even in the absence of demonstrable antibodies in the serum, or that the circulating antibodies in these dogs were absorbed by the remaining thyroid tissue at the time the blood was drawn A study on a second series consisting of nine dogs was started about a year ago, and the series is still under observation Circulating thyroid antibodies are at present demonstrable in seven of these dogs

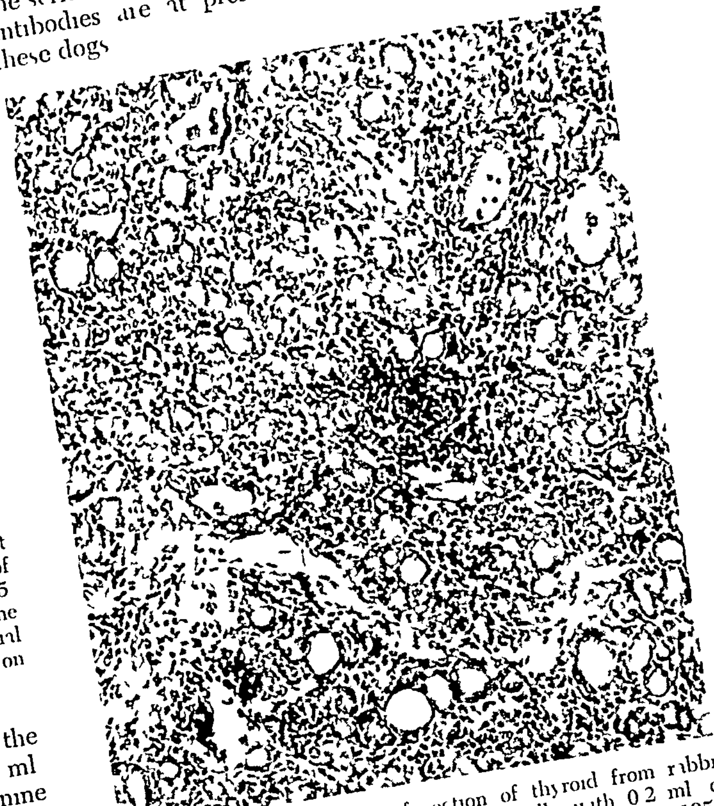

Fig 2—Photomicrograph of section of thyroid from rabbit 419 which had been injected intradermally with 0 2 ml of rabbit thyroglobulin and Freund adjuvants on Jan 6 1955 showing more marked changes than those in figure 1 Acini of thyroid are small and contain only thin colloid In the lumens of some are desquamated cells Interstitial tissue between them and the edematous capsule is densely infiltrated by lymphocytes, plasma cells and especially in the periphery of the gland by numerous eosinophils There are a few nodular accumulations of lymphocytes a slight focal fibrosis in the subcapsular portions surrounding few small colloid follicles is also noticeable Animal was killed on March 14 1955

Guinea Pigs—Histological changes in the thyroids of guinea pigs, basically similar to those in rabbits and dogs, have also been observed after injections with thyroid extract from guinea pigs Circulating thyroid antibodies were found in some instances, but none of the guinea pigs produced antibodies as strongly as did the rabbits, and these circulating antibodies have been demonstrated so far only by the tanned-cell hemagglutination test.

Chronic Thyroiditis in Man

As soon as the first histological sections of thyroid glands of animals immunized with extracts of their own thyroid glands were examined in our laboratory in 1954, it became evident that the histological changes resembled in certain respects those seen in chronic thyroiditis in man. During the past two years we have had an opportunity to examine the serums of certain individuals suffering from various kinds of thyroid disease, including several patients in whom a diagnosis of chronic thyroiditis had been made either clinically or histologically. Of this latter group, 12 had circulating antibodies in various titers against human thyroid extract as demonstrated by the tanned-cell hemagglutination test. In none of the patients with other thyroid diseases was a thyroid antibody demonstrable. These findings in a typical experiment are shown in table 2.

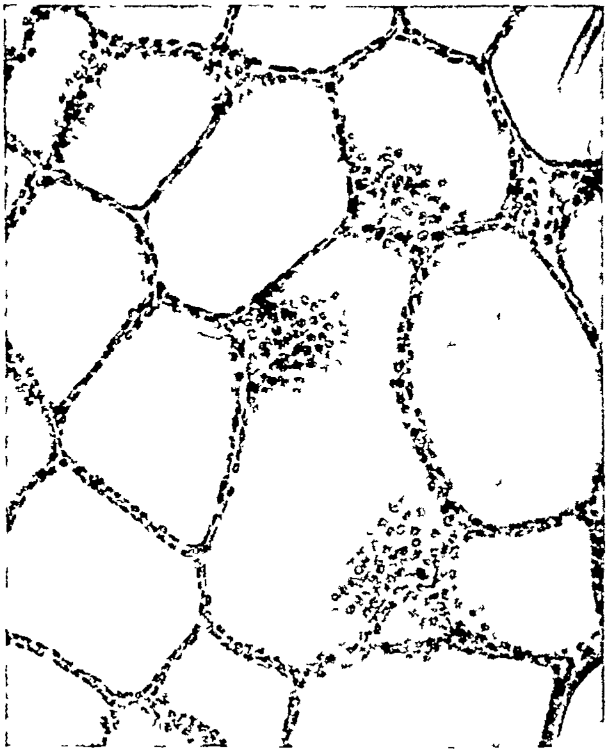

Fig 3.—Photomicrograph of section of thyroid in rabbit 410 which was injected intradermally with 0.2 ml. of rabbit serum with Freund adjuvants on Jan 4, 1955, showing normal pattern. Animal was killed on April 11, 1955.

Increasing serum dilutions (vol 0.1 ml.) of (*a*) patient Tre, (*b*) patient Tho, (*c*) patient May, (*d*) patient Bur, (*e*) normal human serum (negative control) and (*f*) anti human-thyroid rabbit serum 440 (positive control) were mixed with 0.1 ml. of human red blood cells of group O, previously tanned and coated either with a hundredfold diluted, heated human thyroid extract or with a two-hundred-fold diluted normal human serum. As diluent, phosphate-buffered saline solution (pH 7.2) containing 0.5% normal rabbit serum was used. The tanning and coating of the red blood cells was done as described previously.[5] Tanned but uncoated cells were used as controls but were omitted from the table because they were negative. The tubes were kept at room temperature for two hours and then put in the refrigerator over night. Several readings were taken during the observation period. The reading recorded in table 2 represents the pattern of sedimentation observed after standing overnight at 4 C.

TABLE 2.—*Reaction of Serums of Patients with Thyroiditis to Tanned Human Erythrocytes Coated with Human Thyroid Extract or Human Serum*

Dilutions of Patient's Serum or Rabbit Serum	Erythrocyte Coated with Human Thyroid Extract*					Erythrocytes Coated with Human Serum†
	Serum of Patients with Thyroiditis				Serum of Rabbit 440	Serum of Rabbit 440
	Tre	Tho	May	Bur		
1 5	++	+++	+++	+++	+++	+++
1 10	+++	+++	+++	+++	+++	++
1 20	+++	+++	+++	+++	+++	++
1 40	+++	+++	++	+	++	++
1 80	++	++	++	—	++	+
1 160	++	++	—	—	++	+
1 320	++	++	—	—	—	+
1 640	++	++	—	—	—	—
1 1 280	—	++	—	—	—	—
1 2 560	—	—	—	—	—	—

* Normal human serums gave negative reaction in all dilutions

† Serums from all patients and normal human serum gave negative reactions in all dilutions

As table 2 shows, the serums of four patients with thyroiditis were found to contain antibodies of various titers against human thyroid extract, as does the anti-human-thyroid rabbit serum used as the positive control. The normal human serum is negative. Furthermore, in contrast to the rabbit antiserum, the four patients' serums do not agglutinate cells coated with human serum.

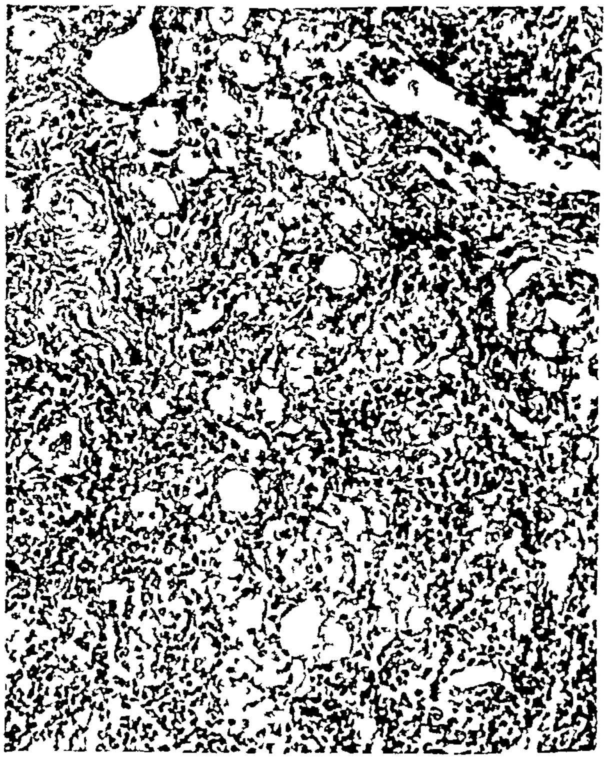

Fig 4.—Photomicrograph of section of thyroid of dog 1184, showing one of more densely infiltrated areas, with slight degree of fibrosis evident and cellular exudations into the lumens of some follicles.

The significant specificity of the results obtained was next tested in two ways First, about 120 human serums submitted for routine serologic tests for syphilis from patients with various diseases were examined None of these serums were positive The experience gained by examination of a large number of control serums emphasized, however, the necessity of including as controls tanned, but uncoated cells in each experiment, since an occasional patient's serum caused agglutination of uncoated, tanned human cells, indicating the presence of an antibody of entirely different specificity directed against the human red blood cells themselves The organ specificity of the antibody present in serums of patients with chronic thyroiditis was substantiated by an 'inhibition-of-agglutination' test, as shown in the following experiment

Increasing dilutions of (*a*) human thyroid extract, (*b*) human liver extract, (*c*) human spleen extract, (*d*) human kidney extract (*e*) normal human serum, and (*f*) the extract of a colloid goiter from patient Buc were mixed with the serum of patient Tho (diluted 1 500) All extracts were prepared in exactly the same manner as the normal thyroid extract (50% w/v) After the mixtures were kept at room temperature for one hour, tanned cells coated with a hundredfold diluted heated human thyroid extract were added The resulting sedimentation pattern, as observed after the test tubes had stood overnight at 4 C is recorded in table 3

TABLE 3—*Inhibition of Agglutination by Various Human Organ Extracts*

	Human Organ Extract		
Dilutions* of Free Antigen	Thyroid	Liver	Colloid Goiter
1 10	—	+++	—
1 20	—	+++	—
1 40	—	+++	—
1 80	—	+++	—
1 160	—	+++	—
1 320	—	+++	—
1 640	—	+++	—
1 1 280	—	+++	—
1 2,560	—	+++	—
1 5 120	+++	+++	—
1 10,240	+++	+++	+
Saline control	+++	+++	+++

* Extracts of spleen kidney and normal serum also gave +++ reactions in all dilutions and in saline control

Occasionally, some difficulties were encountered in inhibition tests because of the lytic action of the liver and kidney extracts in higher concentrations In this experiment, however, no lysis occurred Only the extracts of normal and goiterous thyroid glands, and not those of other organs, inhibited agglutination The goiter extract appears to inhibit in even higher dilutions than does the normal thyroid extract, possibly because of its greater colloid content This experiment further proves the specificity of thyroid antibodies as they may occur in the serum of patients with chronic thyroiditis

These antibodies are not of the cold agglutinin type, inasmuch as the hemagglutination reaction occurred at 37 C (98 6 F) as well as at room temperature Of the four serums that gave positive hemagglutination reactions, one from patient 'Tho" gave slight precipitation when mixed with thyroid extract and also revealed some evidence of complement-fixing activity The three others were completely negative in both precipitation and complement fixation tests The precipitation tests were carried out either in the conventional saline diluent or in an agar gel as described by Oudin [10]

Report of Cases

The case histories of three typical patients in whose serums thyroid antibodies were detected (table 2) are as follows

CASE 1—A 35 year old woman (Tho) was treated at Buffalo General Hospital In December 1952 patient noticed a swelling in the region of the thyroid By August 1953, this swelling had increased, and there was moderate tenderness slight dysphagia and a drawing sensation At the first hospitalization, Sept 30 to Oct 6 1953, both lobes of the thyroid were enlarged hard on palpation, and tender, with a smooth surface but not fixed to the skin or surrounding structures At surgical exposure, the left lobe of the thyroid was found to be grayish yellow in color, firm, and studded with nodules 3 to 10 mm in size One 10 mm nodule was noted in the isthmus The right lobe was somewhat smaller and of about the same color and consistency but without nodules The entire gland was firmly adherent to the trachea

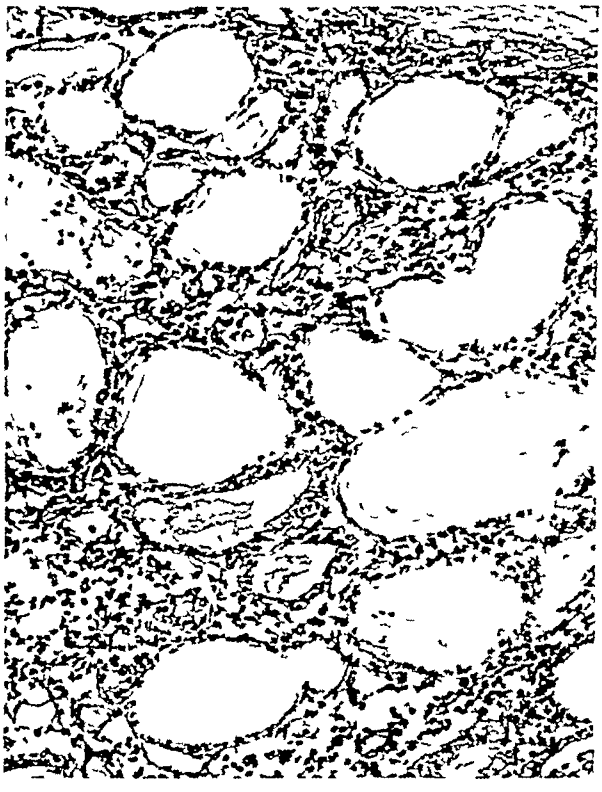

Fig 5—Photomicrograph of section of left lobe of thyroid removed from patient in case 1 in 1953 showing normal-sized acini desquamated and exuded cells within the colloid diffuse inflammatory infiltrations and hyaline fibrosis

A subtotal resection of the left lobe (weight 12 Gm) and isthmus was performed The outstanding histological finding was distinct infiltration by lymphocytes and plasma cells, obscuring the original acinar pattern Thyroid follicles were small and contained little colloid Desquamated epithelial cells intermingled with lymphocytes and leukocytes were present in their lumens In several lobules, lymph follicles had formed including small thyroid acini in their center The interlobular stroma was fibrosed and infiltrated by lymphocytes Occasionally, giant-cell formation of the foreign body type around inspissated colloid could be observed This entire process appears to be more advanced in some lobules than in others In a few of them, it was in a relatively recent state, as numerous acini of normal size had not lost their colloid content and the infiltration by lymphocytes and plasma cells was of a more focal type On the other hand, there were some atrophic lobules with hyalinization and fibrosis of the interlobular stroma Lymph follicles were present in some lobules, especially in the atrophic and diffusely infiltrated ones These changes in their entirety can best be designated as chronic thyroiditis Figure 5 shows some of the features described

After this operation, the patient complained of a continued sensation of pressure in the region of the remaining right lobe of the thyroid On the second hospitalization, Nov 11-17, 1956 a hard and fairly movable mass, about 4 cm in diameter, was felt in the right lobe The entire lobe was excised It was firm grayish tan and nodular, measuring 6 by 4 by 2 5 cm

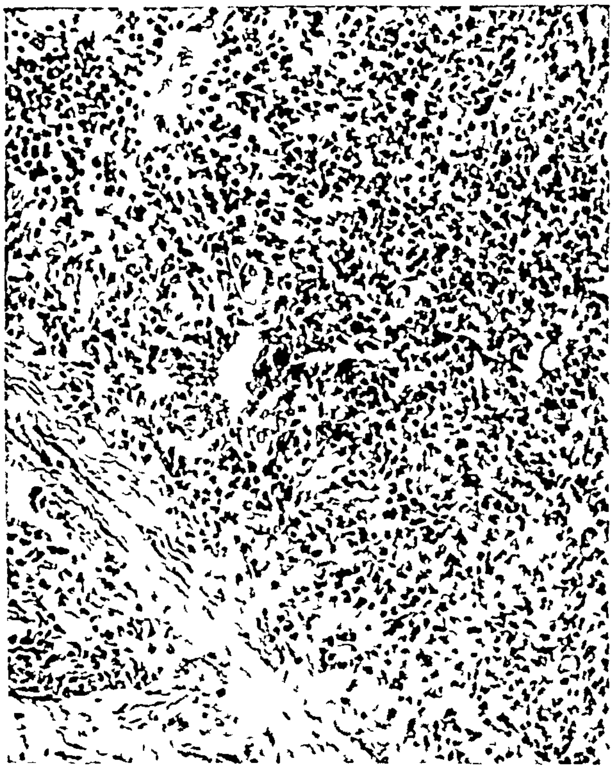

Fig 6 —Photomicrograph of section of right lobe of thyroid removed from patient in case 1 in 1956, showing conspicuous diminution of normal colloid

Comparing the histological findings in the right lobe with those in the left, removed three years previously, the following differences could be noted There was distinct fibrosis around several lobules Some of them were small, appearing almost like diffuse lymphoid structures The most prominent features were infiltrations by plasma cells in sheet-like arrangement Only a few acini had remained with preserved epithelium and colloid In numerous lobules there were well-established lymph follicles with prominent germinal centers or lymphocytic follicles surrounding a central pool of colloid-like fluid matter Most of the acini contained only desquamated epithelium and numerous plasma cells or some inspissated colloid Almost in every lobule some foreign body giant cells were seen surrounding eosinophilic material in some follicular lumens with epithelial lining still preserved The original follicular pattern thus was considerably disrupted It was changed here and there into solid tubules or into small follicles with strongly eosinophilic epithelial cells Some rare mitotic figures were seen in these enlarged epithelial cells of the solid area All these findings were interpreted as severe changes of chronic thyroiditis, and the conspicuous diminution of normal colloid was the most outstanding feature (fig 6)

CASE 2 —A 38-year-old woman (Tre) was treated at Buffalo General Hospital This patient first noted an enlargement of her thyroid in 1953 Some pills and iodine taken for two months were without effect In July, 1954 there was a gradual enlargement of the goiter associated with hoarseness dysphagia, dyspnea malaise and headaches She was hospitalized from Sept 27 to Oct 5, 1954 Examination showed a bilateral enlargement of the thyroid, with the right lobe being larger than the left and somewhat tender Signs of myxedema were noted

Bilateral subtotal resection of the thyroid was carried out The excised tissue was grayish white, stony hard, and slightly lobulated There was constriction of the trachea and esophagus with firm adherence of the thyroid to these structures The gland weighed 57 Gm The right lobe measured 7 by 4 by 2 5 cm and the left 5 5 by 3 by 2 cm

On histological examination, the lobules appeared to be markedly constricted by bands of hyalinized collagenous tissue, extending into the remnants of the original follicles and blending with numerous plasma cells and lymphocytes There were a few acini with pale staining, mostly solid tubules, and finely granular cytoplasm These appeared to be almost obscured within the collagenous hyalinized tissue, replacing much of the original structure, and contained only rare remnants of pale-staining colloid within their narrow lumens A few very small lymphocytic follicles are also seen These findings were interpreted as indicating diffuse chronic thyroiditis of the so called Riedel s type (fig 7)

CASE 3 —A 44-year-old woman (Bur) was treated at Lafayette General Hospital In August, 1956 the patient experienced pain and swelling in the region of the right thyroid lobe for the first time The pain radiated to the ear In October, 1956, she noted similar symptoms on the left side Physical examination revealed a hard nodular tumor mass in the region of the thyroid She had had a 12-lb (5 kg) weight loss during the preceding two months The basal metabolic rate was within normal limits Roentgenographic studies showed a tumor mass just above the clavicle, displacing the trachea to the right The clinical diagnosis was carcinoma of the thyroid On Nov 13 1956 a total thyroidectomy was performed The two lobes measured 5 5 by 4 by 2 cm and 4 by 3 by 1 8 cm

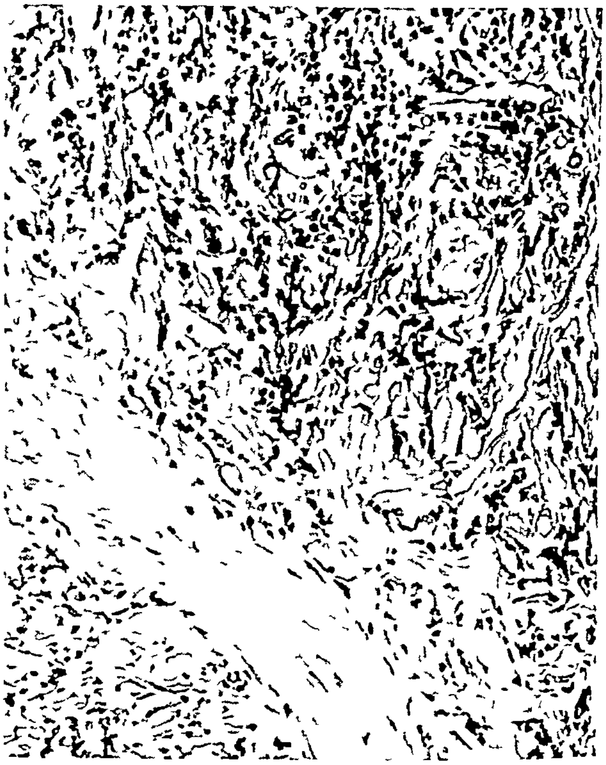

Fig 7 —Photomicrograph of section of thyroid removed from patient in case 2

On histological examination, the lobules of the thyroid were found to be separated by hyaline fibrous bands Some contained acini with considerable colloid and few pseudo tubercles The infiltration by plasma cells and lymphocytes was marked Other lobules consisted largely of tubercle-like granulomas, in the center of which was colloid, surrounded by palisading fibroblasts and numerous leukocytes There were many giant cells of the foreign-body type around inspissated colloid These granulomas had completely masked the original acinar pattern and a few of them resemble small abscesses, due to the large number of leukocytes, particularly in areas where the colloid content had vanished There were no lymph follicles and the fibrosing changes were very marked (fig 8) The findings were interpreted as indicating chronic thyroiditis of the granulomatous (tubercle like) type

Since the pathogenetic mechanisms bringing about the various changes in the thyroid encountered in these three cases of the human disease are still under discussion, the merely descriptive term "chronic thyroiditis" appears as the most suitable These changes represent a fundamental alteration in secretion and resorption of colloid leading eventually to replacement of the original structure by granulomatous and fibrous tissue

In six patients, changes of chronic thyroiditis were proved histologically, but no antibodies were found in their serums at the time of the present study In three of them, the structural changes were extensive, marked, and fairly uniform Of these, one patient underwent total thyroidectomy in 1952, and subtotal thyroidectomies were performed on the other two patients in 1954 In the other three the picture of chronic thyroiditis was only moderately severe and there were fairly numerous follicles with normal-appearing colloid remaining

Comment

Extracts of the thyroid gland can become antigenic within the same species or even within the same individual under certain experimental conditions Rabbit thyroid extract elicited thyroid-antibody formation in rabbits, dog thyroid extract in dogs, and guinea pig thyroid extract in guinea pigs These antiserums proved to be specific for thyroid extract The question arises of whether these antibodies can be considered as true autoantibodies The injection of rabbits that had been subjected to thyroidectomy with their own thyroid extract resulted in antibody formation, strongly supporting this hypothesis Nevertheless, one could still maintain that during the preparation of the thyroid extracts certain alterations might have occurred in the immunochemical constitution of the thyroid extract The autoantibody nature of the antibodies involved, however, seems established finally by the observation that the thyroid antibodies produced by immunization apparently react with and damage the thyroid glands of the antibody-producing animal itself If an immunochemical change of the extract were responsible for its antigenic potency, then the change must have been minimal enough to allow the antibody to act on the antigen of the thyroid gland in situ Therefore, we consider the phenomenon described to be an example of true autoantibody formation

The serologic investigations of thyroid autoantibodies were considerably facilitated by the tanned-cell hemagglutination test recently introduced by Boyden This test proved to be superior to the conventional complement fixation and precipitation tests by allowing the recognition of circulating antibodies in higher titers and in a considerable percentage of immunized animals in which the other tests were negative Admittedly, considerable experience and watchfulness are necessary in the execution of the tanned-cell hemagglutination test, but, when carried out under exacting conditions, the test is most valuable not only because of its sensitivity but also because of its specificity

Many problems still remain to be solved For instance, an autoantibody of this type might disappear from the circulation sooner than other antibodies produced by active immunization because of the presence of its antigen counterpart within the body Since the circulating antibody will be constantly absorbed by the tissue of the immunized animal itself, many difficulties will undoubtedly be encountered in the production of corresponding lesions by passively transferring immune serum into normal animals, as preliminary experiments in our laboratory have already indicated Furthermore, also, the possibility must be considered that antibodies other than those demonstrated in vitro are actually responsible for the disturbance in the thyroid gland In this case, then, the circulating antibodies may be considered as a kind of indicator of the presence of incomplete or cell-bound types of antibodies Similar considerations may apply in allergic encephalomyelitis of experimental animals

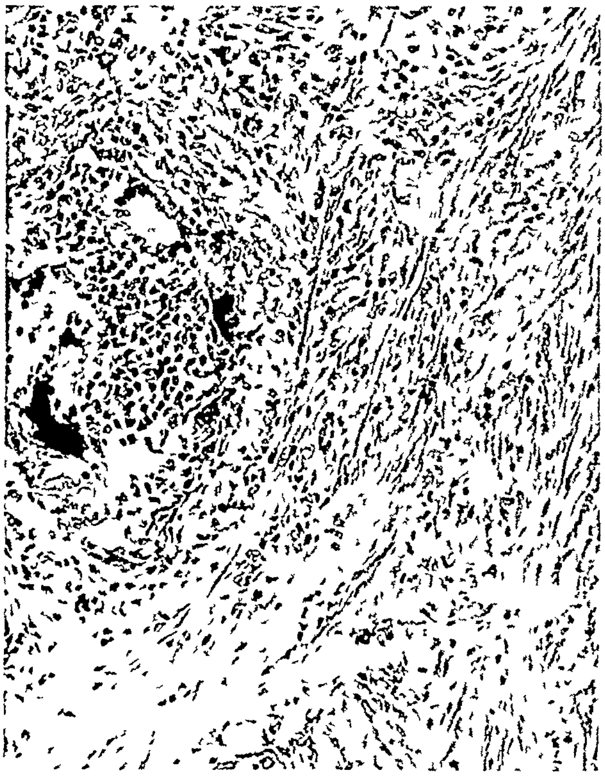

Fig 8 —Photomicrograph of section of thyroid removed from patient in case 3

The comparison of the histological pictures of experimental thyroiditis in animals with that of thyroiditis in man reveals certain similarities One should not forget, however, that by immunization of experimental animals with thyroid extracts early stages of thyroiditis can be produced that one cannot expect to see in patients, who usually present an advanced stage of the disease Circulating antibodies against extracts of human thyroid gland could be detected by the tanned-cell hemagglutination test in some patients suffering from histologically proved chronic thyroiditis Several serums examined electrophoretically have had normal or only slightly elevated gamma globulin values, and only a small proportion gave precipitation and an indication of complement fixation Roitt, Doniach, Campbell, and Hudson,[11] in a recent preliminary communication, reported the demonstration of precipitating antibodies against human thyroid extracts in cases of thyroiditis of the Hashimoto type (lymphadenoid goiter) Significantly, all of their patients exhibited hypergammaglobulinemia According to Roitt, Doniach, Campbell, and Hudson, the antigen involved is human thyroglobulin—paralleling our own experimental findings

The human disease, chronic thyroiditis, might be due, therefore, to a similar mechanism of autoimmunization against constituents of the thyroid gland, specifically thyroglobulin, as is thyroiditis in artificially immunized animals In the case of the animal experimentation however, the thyroid extracts were incorporated in Freund adjuvants and injected parenterally in order to elicit antibody production The role of the Freund adjuvants in the production of antibodies is considerable, though not fully understood Their enhancing effects seem to result from the creation of a depot, as well as from the inflammatory response due to the presence of acid-fast bacilli In preliminary experiments the use of Freund adjuvants without acid-fast bacilli also gave positive results, although the percentage of animals with demonstrable thyroid antibodies accompanied by thyroiditis was decreased in comparison to that in the control group that received the full Freund adjuvants [12] One, therefore, might assume that in human chronic thyroiditis a slow but continuous release of thyroglobulin into the circulation acts as a constant antigenic stimulus, resembling the depot effect achieved in animal experiments by means of Freund adjuvants Such an assumption is supported by demonstration of a free, thyroglobulin-like protein in the bloodstreams of patients suffering from thyroiditis, as reported recently by Owen and McConahey,[13] and Stemmermann [14]

This concept of the pathogenesis of chronic thyroiditis does not explain the circumstances responsible for the excretion of thyroglobulin into the bloodstream Under normal conditions, thyroglobulin presumably does not enter the circulation as an intact protein, being subjected to previous breakdown by the enzymes present in the thyroid gland

As stated above, the pathogenesis of a number of human diseases has been attributed by some investigators to the effect of autoantibodies The time seems to have come to establish certain criteria that ideally should be fulfilled in order to prove the role of an autoantibody in the pathogenesis of a particular disease, namely, (1) the direct demonstration of free, circulating antibodies that are active at body temperature or of cell-bound antibodies by indirect means, (2) the recognition of the specific antigen against which this antibody is directed, (3) the production of antibodies against the same antigen in experimental animals, (4) the appearance of pathological changes in the corresponding tissues of an actively sensitized experimental animal that are basically similar to those in the human disease We believe that these requirements have come close to fulfillment in certain cases of human chronic thyroiditis Nevertheless, what circumstances trigger the release of intact thyroglobulin into the bloodstream remains an unsolved problem

Summary

Saline extracts of thyroid glands incorporated into Freund adjuvants were found to be antigenic not only for animals of the same species, such as rabbits, dogs, and guinea pigs, but even for the individual animal from which the thyroid extract was obtained Purified rabbit thyroglobulin, when injected into rabbits, also proved to be antigenic The tanned-cell hemagglutination test of Boyden provided a highly sensitive method for the demonstration of thyroid antibodies without any sacrifice of specificity The autoantibody nature of this type of thyroid antibody was substantiated by the occurrence of marked histological disturbance in the thyroid glands of the immunized animals

Human serums from patients with chronic thyroiditis were examined in the same way Twelve patients were found whose serums contained circulating antibodies specifically directed against extracts of human thyroid glands Again the tanned-cell hemagglutination test proved to be the most sensitive procedure, although occasionally antibodies could also be demonstrated by precipitation The serologic and histological findings as they occur in certain cases of chronic thyroiditis in man appear to be comparable to those produced artificially in experimental animals On the basis of these similarities, it is proposed that the pathogenesis of some types of chronic thyroiditis in man is related to autoimmunization against constituents of the patient's own thyroid gland, as is experimentally produced thyroiditis in animals, and that circulating thyroid antibodies may be the cause or may serve as the indicator of this process

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CYCLIC ESTROGENIC HORMONE THERAPY OF ACNE VULGARIS

USE OF THE VAGINAL SMEAR TECHNIQUE IN EVALUATION AND TREATMENT

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• *Acne vulgaris was treated in a series of 21 female patients from 13 to 30 years of age by administering orally a preparation of conjugated estrogenic substances The average daily dose was 3 9 mg, and the average duration of treatment was 8 9 months The treatment was cyclical in that it was given only for the 14 days before the expected day of the menses The results were good in seven patients and satisfactory in nine A second series of 50 patients was then treated similarly, except that 8 of these received only a placebo and 12 received only the estrogen, 14 received estrogen for a time followed by a period of placebo medication, while 16 received the placebo for a time followed by a period of estrogen medication None of the patients who received only the placebo showed results described as good, two had satisfactory results The results were good in 24 and satisfactory in 13 of the 42 patients who received the estrogen The effectiveness of the estrogen in influencing hormonal pattern was shown by making vaginal smears and determining the percentage of cornified cells in the smear, normal cornification denoted adequate physiological response and served as a guide in arriving at correct individual dosages Patients who showed an initial estrogen deficiency by this criterion were found to require a significantly higher dosage The results showed that estrogens administered during the postovulatory phase of the menstrual cycle are of value in the treatment of acne*

An etiological relationship between hormones and acne is generally accepted Estrogens, testosterone, progesterone, and pituitary gonadotropin have been given therapeutic trials with varying results[1] This study was devised to determine the therapeutic efficacy of natural estrogens, administered by mouth in the postovulatory phase of the menstrual cycle, on female patients with acne The vaginal smear technique of Dr Ephraim Shorr was used to evaluate patients for initiation of therapy and to check on the response of patients to treatment with various doses of estrogens The study covers two series of patients treated since 1942 The first is a pilot study and the second, a series using placebos for control

Background

Although it is not known exactly how and why, there is good evidence that androgens aggravate and estrogens ameliorate acne Many authors feel that the ratio of these two hormones is more important than the individual hormonal levels per se

The following observations support the theory that androgens are a factor in the production of acne 1 Acne is not seen in eunuchs or castrates and is seen rarely in prepubertal children[2] 2 The incidence of acne is higher in males than in females[2] 3 Masculinizing tumors and disorders of the pituitary and adrenal glands, such as arrhenoblastoma, adrenal cortical hyperfunction (Cushing s syndrome) and adrenal hyperplasia, are often accompanied by acne[3] 4 Therapy with androgens sometimes produces acne This is true even in the eunuchoid or castrate group and in prepubertal children[3] Administration of adrenocorticotropic hormone or similar acting compounds which increase androgenic hormone levels has a similar effect

The role of estrogens in the amelioration of acne is supported by the following observations 1 Acne usually is less severe in the midportion of the menstrual cycle when estrogen levels are highest, and exacerbations occur premenstrually when estrogen levels decrease[4] 2 In pregnancy, when the estrogen levels are high, acne is usually absent or much less severe[4] 3 Assays for urinary estrogens have been reported as lower in female patients with acne than in controls[5] 4 Treatment with estrogenic hormone substances has proved beneficial[6]

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Outline of Study

Estrogenic hormones were administered during the postovulatory phase of the menstrual cycle, so that large doses could be given without suppressing ovulation or disturbing the menses [7] With such administration most side-effects of estrogen administration are avoided, and there is no possibility of a cumulative effect

Selection of Hormone—Although parenterally administered estrogens are more predictable in regard to the physiological effect per unit dose, an oral medicament was chosen in order to eliminate the necessity of frequent clinic visits by the patients and thus insure that treatment was started on a particular day of the menstrual cycle in consecutive cycles A preparation of conjugated estrogenic substances (Premarin) was selected because of its relative freedom from side-effects, such as nausea and vomiting, sometimes found with synthetic preparations

Vaginal Smear Technique—The vaginal smear technique[8] is a practical method of studying ovarian function and the physiological response to estrogenic hormone administration The method is based on the estrogenic control of the proliferation of the vaginal epithelium This proliferation causes a variation in the morphology and staining characteristics of the desquamated vaginal cells

The technique was selected over other methods (urinary assays of estrogens, endometrial biopsies) because it is simple, inexpensive, and nontraumatic The smear can be obtained, prepared, stained, and evaluated within a few minutes The method permits continuous rather than episodic observation of ovarian function This is of great value both in evaluating the individual patient as to type and degree of ovarian insufficiency and in planning the therapy After the time of ovulation is determined, estrogens can be administered thereafter with no danger of disturbing the menstrual cycle

The technique consists of the insertion of a pipet into the vagina, aspiration of a small amount of secretion containing exfoliated cells, transfer of this material to a glass slide, fixation, and staining The Shorr modification of the Papanicolaou stain was used because it has the advantage of being a single differential stain In performing a full-cycle series, a patient can take her own smears and store them in a bottle containing fixative until her next clinic visit

The smear was used to determine the influence of estrogens on the vaginal epithelium The patient took smears at home throughout one cycle These smears were evaluated to determine the time of ovulation and the hormonal pattern After the initiation of therapy, the response of the vaginal epithelium was followed by smears on the clinic visits

The cornification index (percentage of cornified cells in the smear) was used to evaluate the therapeutic response This index does not represent the total information gained from observation of the smear, since the effect of progesterone is not interpreted by it But if used in the same patient at the same time of the cycle, it is indicative of the response to estrogens when compared with the cornification index of the pretreatment smear for the same time of the cycle This simplification would enable a physician with a minimum amount of training to evaluate and adjust the dosage in a patient previously evaluated by a competent endocrinologist Use of this index also simplifies graphic representation

The following conditions were considered as contraindications to estrogen therapy (1) endometriosis, (2) evidence of persistent ovarian follicle, (3) cystic mastitis, (4) carcinoma of breast or female reproductive organs, (5) ovarian cyst, and (6) severe liver disease None of our patients, however, was found to have these contraindications except one, who showed evidence of a persistent ovarian follicle on the vaginal smear series

Pilot Study

The pilot study was carried out in the thyroid-endocrine clinic of the New York Hospital from 1942 to 1948 under the direction of Dr Ephraim Shorr The patients are not representative of the average patient with acne They were referred for treatment because of evidence of ovarian insufficiency, menstrual irregularities, or failure of conventional methods to effect a cure of the disorder Of over 50 patients studied, only 21 received estrogen therapy for a minimum period of three months and therefore warrant therapeutic evaluation

In these 21 patients, the age varied from 13 to 30 years, with the average being 20 6 years The average age of the patient at the onset of acne was 14 years Nine patients had menstrual irregularity and eight had dysmenorrhea Vaginal examination of 19 revealed 15 with apparently normal uteri and 4 with uteri classified as small for their age The vaginal smear series was interpreted as being normal in 5, showing evidence of estrogenic hormone deficiency in 15, and being indeterminate in 2

The preparation of conjugated estrogenic substances was administered orally for the 14 days before the expected date of the menses The usual starting dose was 1 25 mg daily With each succeeding cycle the dose was raised 1 25 mg daily until a good clinical result was obtained or the vaginal smear showed adequate physiological response (normal cornification) Dosage was then decreased by 1 25 mg daily in succeeding cycles as long as improvement held Maintenance dosage consisted of the minimal amount of hormone which sustained improvement

Therapeutic results in this series of 21 patients were based on clinical judgment and serial photographs The length of treatment ranged from 3 to 28 months, with the average time being 8 9 months The maximum daily dosage of conjugated estrogenic substances ranged from 1 25 to 8 75 mg, with the average being 3 9 mg The results were good in seven patients, or 33 3%, satisfactory in nine, or 42 8%, and unsatisfactory in five, or 23 8% In two patients there was the side-effect of premenstrual breast tenderness and in one, increased dysmenorrhea

Second Series

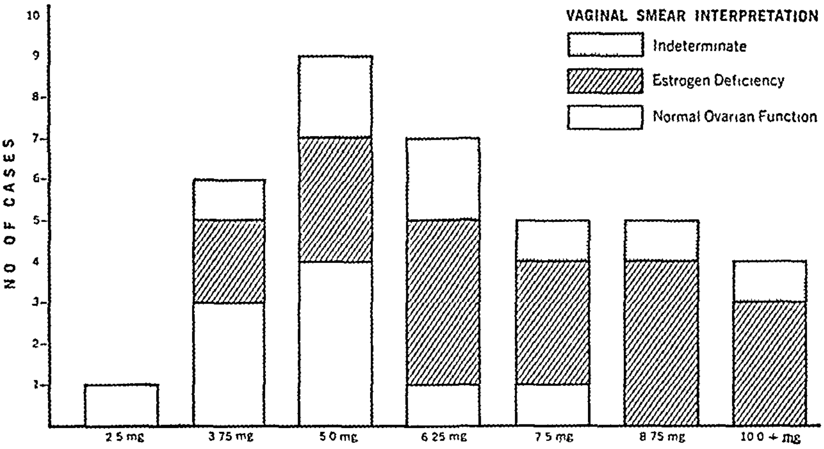
The second series of patients was observed in the dermatology clinic of the New York Hospital from 1948 to 1953 It is representative of the average female patient with acne, as unselected patients admitted to the clinic were referred for study Selection for inclusion in the series was on the basis of willingness to cooperate and availability for follow-up studies All patients who completed studies and one course of hormone or placebo therapy are included in the statistics

Twelve patients received only estrogens, and eight, including the patient with the persistent ovarian follicle, received only placebo Thirty received both estrogens and placebo, 16 receiving the placebo before the estrogens and 14 after the estrogens In all, 42 patients were treated with estrogens The ages of the 50 patients in the series ranged from 11 to 30 years, with the average being 14 1 years Menstrual irregularity, dysmenorrhea, and premenstrual exacerbation of acne were present in 30 4%, 60%, and 78%, respectively, of the group Adult breast development was present in 46%, while adolescent development was present in 54% Basal temperature studies were carried out on 13 patients Nine were interpreted as ovulatory and four as anovulatory

The initial vaginal smear studies were interpreted as being indicative of apparently normal ovarian function in 14 patients, or 28%, evidence of estrogen deficiency in 27, or 54%, indeterminate in 8, or 16%, and persistent follicle in one, or 2%

This series was a controlled study in that courses of hormonal and placebo therapy were alternated without the knowledge of the patient Weak lotio alba (4% active ingredients) was used by all patients Pustule counts at the same phase of successive cycles were used as a criterion for evaluating therapeutic response The estrogen preparation or the placebo was administered in the same manner as described in the pilot study

Results of the estrogen therapy in the 42 patients were good (75 to 100% improvement) in 24 or 57%, satisfactory (50 to 75% improvement) in 13, or 31%, and unsatisfactory (less than 50% improvement) in 5, or 12% Length of the treatment averaged 6 8 months, with a range of 3 to 18 months Maximum daily dosage averaged 6 mg , with a range of 1 25 to 12 5 mg (see figure)



Correlation of maximum dosage of conjugated estrogenic substances (Premarin) administered daily in the postovulatory phase of the menstrual cycle, with vaginal smear series interpretation in the 37 successfully treated (more than 50% improvement) cases in the second series

Of the 8 patients who received only placebo and the 16 who received placebo before estrogens, none showed good results Two, or 8%, had satisfactory (50 to 75% improvement) results and 22, or 92%, unsatisfactory (less than 50% improvement) Of the 14 patients who received placebo after estrogens, 3, or 22%, held the improvement they attained and 11, or 78%, had a relapse Length of treatment average 4 5 months, with a range of 2 to 18 months

In correlating the maximum dosage of estrogens with the findings on vaginal smear in successfully treated patients (those showing more than 50% improvement), it is seen that those patients with evidence of estrogenic hormone deficiency required on the average higher doses than those with apparently normal ovarian function No patient with normal ovarian function received more than 7 5 mg of conjugated estrogenic substances daily, while seven patients with estrogen deficiency received doses higher than this amount

Surprisingly few side-effects were encountered Three patients receiving hormones complained of premenstrual breast tenderness, which, however, was not severe enough to necessitate stopping therapy Symptoms were ameliorated when a lower dosage was given Two patients on hormone therapy and one on placebo reported delayed menses One patient on each type of therapy reported increased dysmenorrhea One patient receiving hormones reported increased and prolonged menstrual flow

Summary

Our results indicate that the administration of estrogens in the postovulatory phase of the menstrual cycle is of value in the treatment of acne The optimum dosage varies considerably and has to be individualized for each patient Those patients interpreted as showing estrogen deficiency in the vaginal smear series required on the average a significantly larger amount of hormones than those interpreted as having normal ovarian function

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The Shorr modification of the Papanicolaou stain is available on request from Ayerst Laboratories, Inc , New York

The second series in this study was supported, in part, by a research grant from Ayerst Laboratories, Inc , New York

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ACQUIRED ARTERIOVENOUS FISTULA WITH BACTERIAL ENDARTERITIS AND ENDOCARDITIS

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• *The problem of endarteritis and endocarditis complicating acquired arteriovenous fistula was encountered in two patients Each patient was hospitalized because of a febrile illness and was found to have a large arteriovenous communication related to prior gunshot wound The first patient was shown to have endarteritis in a fistula measuring 1 cm in diameter between the femoral artery and vein, and endocarditis was considered to be present because of aortic insufficiency and peripheral embolic phenomena His temperature remained elevated despite therapy with penicillin and streptomycin but promptly became normal after surgical removal of the fistula The second patient, with an extensively calcified aneurysm involving the subclavian vessels, was not conclusively proved to have endarteritis His temperature also showed no change during penicillin and streptomycin therapy but returned to normal after excision of the fistula The first patient died one year after surgery, with manifestations of severe aortic insufficiency, and the second made a good recovery These cases illustrate that in certain instances removal of an arteriovenous fistula may contribute greatly to the control of complicating intravascular infection by antimicrobial drugs*

The recognition of bacterial endarteritis in acquired arteriovenous aneurysms is uncommon Only 13 patients with this complication have been described in the American literature[1] Five of these patients had bacterial endocarditis in addition to endarteritis[2] Endocarditis in the absence of endarteritis has not been reported as a complication of arteriovenous fistula in man

Recently, two cases of acquired arteriovenous fistula have been encountered in which the problem of endarteritis and endocarditis has arisen After surgical removal of the fistula, combined with antibiotic therapy, both patients improved rapidly These patients are the subject of the present report

Report of Cases

CASE 1 —A 34 year-old male was admitted to Grady Memorial Hospital on Oct 19 1954 For seven weeks he had experienced increasing shortness of breath and edema of the scrotum and lower extremities Five weeks before hospitalization his temperature had been 100 2 F (38 C) orally and his blood pressure 140/80 mm Hg At that time moist inspiratory rales were audible at the lung bases posteriorly The heart was enlarged to the anterior axillary line A harsh grade 2 systolic murmur was audible at the apex and a grade 1 high-pitched diastolic murmur could be heard at the left sternal border There was pitting edema of the scrotum and lower extremities Moderate improvement in the symptoms of heart failure followed digitalization and administration of a mercurial diuretic Three weeks before admission pleuritic pain appeared on the left and shortness of breath became more marked The patient s temperature was 102 F (39 C) Procaine penicillin G 600 000 units daily was administered intramuscularly for six days Sulfadiazine was also prescribed, but the amount actually taken is unknown Shortly before admission chest pain on the left became more intense and was associated with hemoptysis and increasing dyspnea

History —According to the patient s history, he had been shot in the left thigh with a 32-caliber pistol in 1942 The bullet penetrated the thigh to the opposite cutaneous surface and was palpable under the skin Without medical aid, the patient removed the bullet by picking it out with a pocket knife In 1948, a stab wound into the first intercostal space on the left anteriorly produced a pneumothorax Examination of the heart revealed no abnormalities, and the blood pressure was 120/70 mm Hg The extremities were described as normal, and peripheral pulses were present The Kahn test was negative Recovery was prompt and complete

In 1952, the patient received another gunshot wound in the lower part of the left thigh with a 38-caliber pistol, the bullet passing completely through the soft tissues Dorsalis pedis pulses

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From the departments of medicine and surgery, Emory University School of Medicine and the Grady Memorial Hospital Dr Sellers is a Fellow of the National Foundation for Infantile Paralysis During this study Dr Hook was a Whitehead Fellow in Medicine, he is now at the Johns Hopkins Hospital, Baltimore were palpable, and a roentgenogram of the lower part of the femur showed no abnormalities. Penicillin was given for four days, and the wound healed rapidly without apparent complication.

For several years before admission the patient had experienced a buzzing sensation in the left thigh. For two years he had noticed swelling of the left leg and thigh following long periods of standing. Several months prior to the present admission the patient had had a tooth extracted. There was no history of venereal disease other than gonorrhea in 1937. No history of rheumatic fever or chorea was obtained.

Physical examination.—Physical examination revealed a temperature of 97.8 F (36 C), pulse rate of 88, respiratory rate of 32 per minute, and blood pressure in the left arm of 130/40 mm. Hg, in the right arm of 140/46 mm. Hg, and in the right leg of 240/70 mm. Hg. Blood pressure could not be obtained in the left leg. There were marked orthopnea and dyspnea. Many cutaneous scars were present, especially on the extremities. No clubbing of the digits or cyanosis was noted. Multiple dark-red splinter hemorrhages were observed under the nails of the left thumb and right great toe. The pupils reacted to light and in accommodation. Two small hemorrhages were observed in the left ocular fundus. Purulent material was present in the socket of an upper premolar tooth. Moist inspiratory rales were heard throughout both lungs. Systolic and diastolic thrills were palpable at the base of the heart. The border of cardiac dulness on the left extended to the midaxillary line in the sixth intercostal space. Grade 4 systolic and diastolic murmurs were heard in the primary and secondary aortic areas, and a grade 3 systolic murmur and a rumbling diastolic murmur were audible at the apex. The liver was enlarged 4 fingerbreadths below the costal margin, but the spleen was not palpable. There was edema of the feet and legs, most marked on the left. The superficial veins of the left leg and thigh were dilated and prominent. A pulsating mass measuring 8 by 5 cm. was present in the lower left part of the thigh in the region of the femoral vessels. A continuous thrill was palpable in this area, corresponding to a loud continuous murmur with systolic accentuation. Pistol-shot sounds were heard over the femoral arteries in both legs. Dorsalis pedis and posterior tibial pulsations were absent on the left.

Fig. 1.—Roentgenogram of left thigh, showing arteriovenous aneurysm of femoral vessels (case 1).

Initial Laboratory Data.—The serologic test for syphilis was negative and the urinalysis normal. Blood hemoglobin concentration was 9.4 Gm. per 100 cc. and the hematocrit 36%. Leukocyte count was 6,750 per cubic millimeter, with 2% basophils, 8% stab forms, 41% segmented neutrophils, 43% lymphocytes, and 6% monocytes. An adequate number of platelets were seen on smear. The blood urea nitrogen level was 33 mg. per 100 cc. Arm to tongue circulation time was 17 seconds, antecubital venous pressure was 164 mm. of saline solution. A roentgenogram of the left thigh (fig. 1) showed an oval soft tissue mass at the medial aspect of the femur. Calcification was noted in the inferior portion of the mass. An electrocardiogram was interpreted as showing left ventricular hypertrophy.

Course.—Initial therapy consisted of bed rest, a diet limited to 200 mg. of sodium, redigitalization, and mercurial diuretics. During the first four hospital days chest pain subsided, dyspnea lessened, pulmonary rales cleared, and a weight loss of 10 lb. (4.5 kg.) was recorded. Fourteen of 16 blood cultures obtained during the initial four hospital days grew Micrococcus pyogenes var. albus which was hemolytic but coagulase-negative and mannitol-negative. Four cultures also revealed a microaerophilic diphtheroid. On the fourth hospital day, antibiotic therapy of 12 million units of penicillin (1 million units intramuscularly every 2 hours) and 2 Gm. of streptomycin (1 Gm. intramuscularly every 12 hours) daily was started. Although symptoms of congestive heart failure had disappeared, a chest roentgenogram on the 10th hospital day (fig. 2) showed no change in cardiac size or degree of pulmonary congestion as compared to earlier films. Temperature continued to reach levels of 100 to 101 F (37.8 to 38.3 C) daily. Because of pain at the sites of intramuscular injection, penicillin was given by slow intravenous infusion (6 million units in 1,000 cc. of 5% dextrose in water over a period of 6 to 10 hours twice daily) beginning on the 10th hospital day (fig. 3).

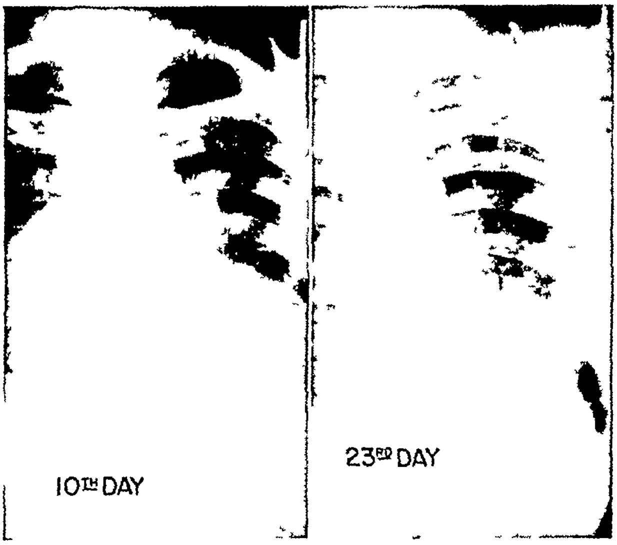

Fig. 2.—Chest roentgenograms before and after removal of femoral arteriovenous aneurysm (case 1).

On the 11th hospital day the left femoral arteriovenous fistula was removed with the patient under general anesthesia. A longitudinal incision was made in the medial aspect of the lower part of the left thigh, and the adductor canal was entered. A saccular dilatation of the femoral artery measuring 8 by 5 cm., was encountered protruding medially. In this area a communication was present between the femoral artery and vein. Both vessels were dissected free above and below the aneurysm. The proximal artery, distal artery, distal vein, and proximal vein were ligated and divided in that order, and the arteriovenous aneurysm was removed.

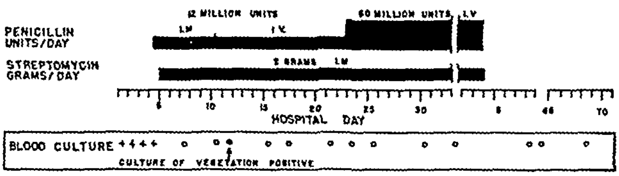

Fig. 3.—Hospital course in patient in case 1.

In the surgical specimen (fig. 4) a communication 1 cm. in diameter was present between the femoral artery and vein. A number of vegetations was located within the aneurysm near the opening of the distal artery. Microscopically, deposits of calcium and colonies of bacteria were visible in the vegetations (fig. 5). Several vegetations were removed with aseptic technique, crushed, and placed in tryptose phosphate broth. M. pyogenes var. albus grew in these cultures, and this organism was shown to have the same biochemical characteristics as the Micrococcus obtained from the blood. Antibiotic sensitivity studies performed on both organisms revealed inhibition by 10 mcg of chlortetracycline, tetracycline, and chloramphenicol per cc and resistance to 10 units of penicillin per cubic centimeter The Micrococcus isolated from the vegetations was also found to be resistant to 100 mcg of streptomycin per cubic centimeter

The patient improved rapidly and became ambulatory During the early postoperative period the temperature became normal The only changes in the cardiac findings were a slight decrease in the systolic thrill and murmur at the base and a decrease in heart size on roentgenogram (fig 2) Blood pressure remained at the previous level of 140/40 mm Hg Numerous blood cultures containing penicillinase taken during the postoperative period were sterile On the 22nd hospital day the patient experienced the sudden onset of anterior chest pain and severe frontal headache The right knee jerk was absent, but no other changes from previous examinations were noted An electrocardiogram revealed no changes of significance Lumbar puncture revealed an initial spinal fluid pressure of 110 mm, the fluid was cloudy and contained 8 erythrocytes and 1,590 leukocytes per cubic millimeter, with lymphocytes predominating The cerebrospinal fluid was sterile on culture and had normal concentrations of protein, sugar, and chloride Another specimen of cerebrospinal fluid obtained approximately 12 hours later contained no erythrocytes and 632 leukocytes, 90% of which were lymphocytes Penicillin dosage was increased from 12 million to 60 million units daily (30 million units in 1 000 cc of 5% dextrose in water given intravenously over a period of 6 to 10 hours twice daily) The patient s temperature rose to 99 8 F (38 C) at the onset of this episode, but blood cultures were negative Headache subsided in 48 hours, and the right knee jerk returned to normal

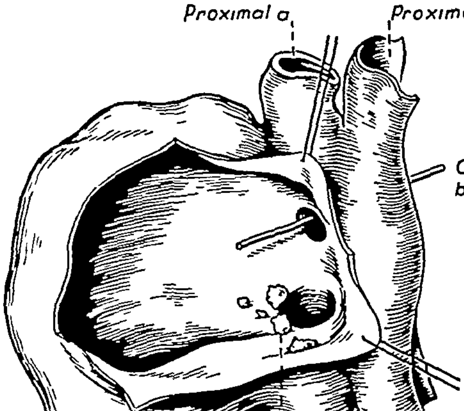

Fig 4 —Arteriovenous aneurysm, drawn from surgical specimen (case 1)

Administration of penicillin and streptomycin was discontinued on the 44th hospital day, after 41 days of continuous therapy On the 48th hospital day the patient complained of dizziness, which persisted for the remainder of the hospital stay No additional complications developed The patient was discharged on the 71st hospital day

Congestive heart failure developed within one month after discharge, and the patient was hospitalized because of this complication in March, May, and October, 1955 On all occasions the findings were those of marked congestive heart failure caused by aortic insufficiency There was no evidence of infection and numerous blood cultures were sterile On Nov 6 1955, the patient died suddenly at home Prior to the time of death, manifestations of congestive heart failure were minimal Permission for autopsy was not granted

This patient was proved to have endarteritis in an arteriovenous aneurysm involving the femoral artery and vein Bacterial endocarditis was also thought to be present, as evidenced by aortic insufficiency and peripheral embolic phenomena Bacteriological cure was achieved, although the patient continued to show manifestations of severe aortic insufficiency It seems likely that death was a consequence of severe damage to the aortic valve produced by bacterial endocarditis one year previously

Case 2 —A 33-year-old male sustained a bullet wound in the left midsubclavicular region in January, 1951 The left radial pulse was barely palpable and hemopneumothorax was present on the left On the 12th hospital day, a loud machinery like murmur was heard over the left anterior part of the chest, and a thrill was palpable in this area Blood pressure in the right arm was 150/60 mm Hg and in the left, 115 mm Hg systolic a satisfactory diastolic pressure could not be obtained in the left arm A diagnosis of traumatic arteriovenous fistula involving the left subclavian artery was made The patient was discharged from the hospital after 26 days and was to be followed as an outpatient until sufficient collateral circulation developed to permit corrective surgery When discharged he was asymptomatic and there was no roentgenographic evidence of cardiomegaly

The patient was readmitted three months later for consideration of corrective surgery He was asymptomatic and had been performing hard physical labor without difficulty His blood pressure was 150/90 mm Hg on the right and 140/80 mm Hg on the left His pulse was regular The murmur and thrill were unchanged The left arm was considerably larger than the right but was warm and functioned well the left radial pulse was weakly palpable Cardiovascular studies revealed slowing of the pulse on manual compression of the subclavian artery rapid circulation time, increased stroke volume, decreased peripheral resistance, and increased blood volume A chest roentgenogram revealed cardiomegaly and pulmonary congestion Surgery was recommended but was refused

The patient was lost to further follow-up for over three years, until Oct 30, 1955, when he returned complaining of dyspnea pleuritic chest pain, fever, chills, and productive cough of four days duration On admission the temperature was 103 F (39 C), the pulse rate was 144 and irregular due to auricular fibrillation The blood pressure in the right arm was 170/100 mm Hg and in the left, 165/100 mm Hg The murmur and thrill associated with the arteriovenous fistula were unchanged The left arm was much larger than the right and showed extensive collateral circulation about the shoulder The heart was enlarged but no cardiac murmurs were heard, even after manual compression of the fistula Moist rales were heard at the lung bases A chest roentgenogram revealed marked cardiomegaly and considerable congestion or infiltration in both midlung fields A well-defined irregular calcified mass with ring-like formations was noted in the region of the aneurysm Several metallic foreign-body fragments were also present (fig 6) The electrocardiogram showed auricular fibrillation and changes suggestive of right ventricular hypertrophy The blood leukocyte

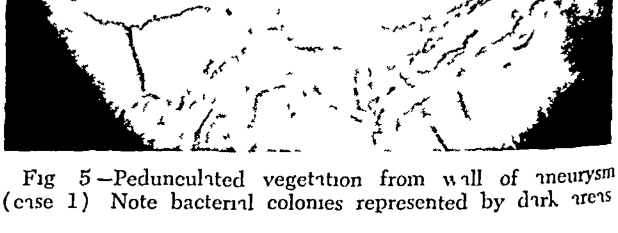

Fig 5 —Pedunculated vegetation from wall of aneurysm (case 1) Note bacterial colonies represented by dark areas

count was 11,560 per cubic millimeter, with a normal differential, hemoglobin concentration was 11 6 Gm per 100 cc Urinalysis revealed a 3+ reaction for protein, but the specimen was normal on microscopic examination, blood urea nitrogen concentration was 8 mg per 100 cc Venous pressure in the right arm was 170 mm of saline solution and in the left, 480 mm The arm-to-tongue circulation time was 20 seconds bilaterally During the first two days, five blood specimens cultured aerobically and anaerobically were sterile A few colonies of *pneumococci* grew on sputum culture

On the second hospital day (fig 7), the patient was started on therapy with aqueous penicillin, 1 million units every two hours, and streptomycin, 0 5 Gm twice daily He was also digitalized and his sodium intake was restricted Two days after admission, he was observed by a nurse to have a generalized seizure No neurological residuals were noted, and examination of the cerebrospinal fluid was negative The symptoms of dyspnea and cough improved, but, in spite of antibiotic therapy, he remained febrile On the 18th day, the dosage of penicillin was increased to 24 million units intravenously per day

The arteriovenous aneurysm was removed on the 19th hospital day A large calcified mass surrounded the area of the fistula, making removal extremely difficult An arteriovenous communication was encountered between the third portion of the subclavian artery and vein A large calcified false aneurysm encased the fistula, and numerous vascular channels existed between the fistula and the false aneurysm The fistula and much of the calcified shell were removed An area of the endothelial surface of the excised fistula had an irregular trabeculated appearance M pyogenes var albus which was coagulase-negative grew in a culture of a homogenized portion of this tissue Careful microscopic examination of selected areas of the fistula, however, revealed no evidence of an inflammatory process

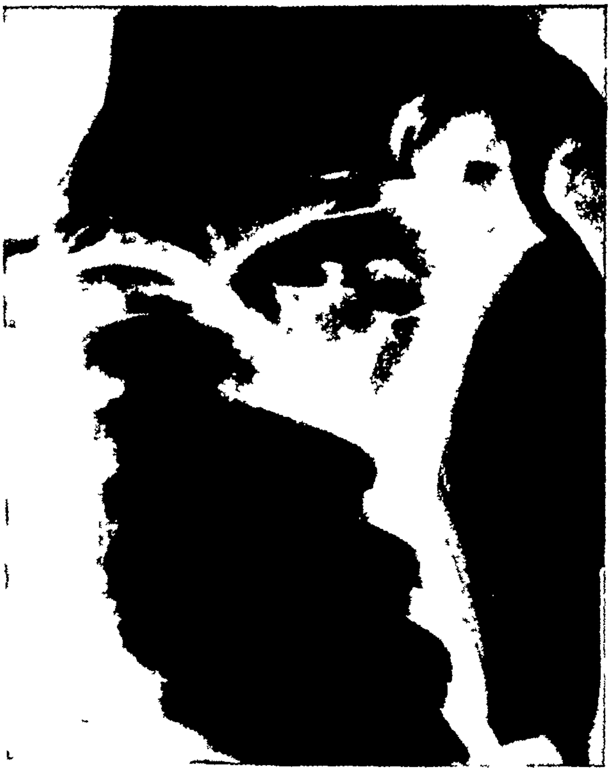

Fig 6 —Roentgenogram of left shoulder, showing extensive calcification and metallic fragments at site of arteriovenous aneurysm (case 2)

The postoperative course was uneventful except for elevated temperature that persisted for five days Because of the possibility that this represented a drug fever, use of penicillin was discontinued and chlortetracycline, 1 Gm per day, was substituted No significant elevation of temperature occurred after chlortetracycline therapy was started On the 13th postoperative day, administration of all antibiotics was stopped An unsuccessful attempt was made to produce fever by administration of 48 million units of penicillin in two days

When the patient was discharged on the 26th postoperative day, his condition was improved, although the heart had not decreased in size The left arm remained warm and functioned well Venous pressure on the right was 80 mm of saline solution, and the arm-to-tongue circulation time was 10 seconds Auricular fibrillation continued After chemotherapy was stopped, blood cultures were consistently negative

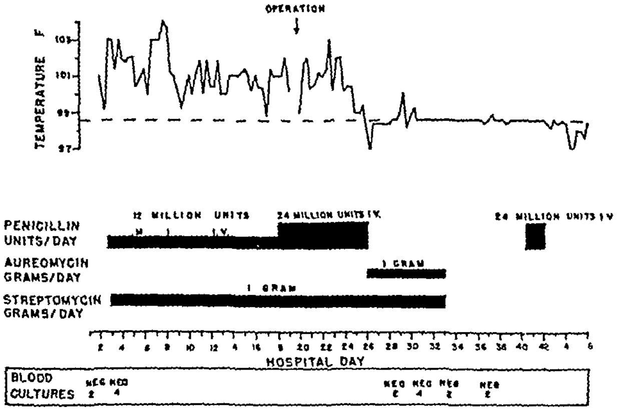

Fig 7 —Hospital course in patient in case 2

One month later the patient was readmitted for attempted conversion of the auricular fibrillation He had been asymptomatic in this interval and had continued taking digitalis, 0 1 Gm per day He was afebrile and appeared well The blood pressure was 140/100 mm Hg in the right arm and unobtainable in the left arm No murmur or thrill was detected at the former site of the arteriovenous fistula The auricular fibrillation was converted to normal sinus rhythm with quinidine, and the heart subsequently decreased significantly in size

This patient was not conclusively proved to have endarteritis in his arteriovenous fistula However, the prompt defervescence after surgical excision of the fistula suggests this diagnosis Although the Micrococcus cultured from the surgical specimen cannot be disregarded, this micro-organism was not necessarily the etiological agent The occurrence of extensive calcification at the site of the aneurysm added greatly to the difficulties in surgical removal and in subsequent pathological study

Comment

These cases are similar in many respects to those reported by others[1] In all previous instances, arteriovenous communications which were the site of endarteritis have been large and have involved iliac, femoral, or subclavian vessels Most of the fistulas had been present for many years before the development of endarteritis or endocarditis, but this interval ranged from a few months to 53 years Although the majority of the fistulas were related to gunshot wounds, only two were incurred in military service[3]

The clinical manifestations of endarteritis alone are similar to those of bacterial endocarditis, except that peripheral embolic phenomena are absent in the former The nail bed and retinal hemorrhages and aortic insufficiency in case 1 strongly indicate that endocarditis was present in addition to endarteritis In all reported cases of endocarditis complicating endarteritis, the aortic valve has been involved In the patient reported by Parmley and others,[1c] vegetations were also present on the mitral valve

The repeated finding of M pyogenes var albus in case 1 is unique In previous reports of bacterial endarteritis in arteriovenous fistulas, the infecting organism has been Streptococcus viridans in every case except two, in one [1e] Str faecalis was isolated, and in another [1l] a "hemolytic Streptococcus" was the etiological agent

The experimental work of Lillehei and co-workers [4] has contributed to an understanding of the mechanisms involved when endocarditis complicates arteriovenous fistula These investigators produced bacterial endocarditis and, in some instances, endarteritis in dogs by construction of large arteriovenous fistulas If fistulas were of sufficient size and duration, endocarditis developed spontaneously, but this complication could be hastened by the injection of bacteria In these animals combined antibiotic and surgical therapy proved relatively ineffective [5]

Surgical excision and antimicrobial therapy have effected a cure in all reported cases of endarteritis without endocarditis, except two that were cured by surgery alone [6] Recently the tendency has been to attempt to control the infection with antibiotics prior to surgical removal In two reported cases, control of infection was not possible with antibiotics alone, and defervescence occurred only after the infected arteriovenous aneurysm was removed [7] Case 1 demonstrated this point most clearly There have been no cures reported in patients who also had endocarditis, regardless of the type of therapy, although the patient treated by Heckler and Tikellis [1d] had not shown evidence of infection for 29 days postoperatively when she died of a pulmonary embolus

It is of interest that, in the patient described by Kahn,[1m] numerous cultures of blood drawn from antecubital veins were negative, and it was not until blood cultures were obtained from the femoral vein proximal to the fistula that the infecting organism was identified This technique was not employed in case 2, but, in retrospect, it might have proved helpful

Summary

Bacterial endarteritis and endocarditis occasionally develop in patients with acquired arteriovenous aneurysms Endarteritis usually occurs in large fistulas of long standing and is most often caused by Streptococcus viridans In all reported cases of endocarditis complicating endarteritis, the aortic value has been involved and the outcome has been fatal One of the patients described in this report had a large arteriovenous aneurysm with bacterial endarteritis and endocarditis caused by Micrococcus pyogenes var albus Bacteriological cure was achieved, but the patient died one year later of the consequences of severe damage to the aortic valve Surgical removal of the infected fistula appeared to contribute greatly to the control of the infection

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Drs Robert Hausman and Charles LeMaistre helped in the preparation of this paper

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2 Footnote 1*a* through *e*

3 Footnote 1*e* and *i*

4 Lillehei, C W Wargo J D, and Hammerstrom, R N Experimental Bacterial Endocarditis and Proliferative Glomerulonephritis Description of Method of Production Utilizing Bilateral Lower Extremity or Single Aorta-Vena Cava Arteriovenous Fistulas Dis Chest **24**.421-444 (Oct) 1953

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6 Footnote 1*f* and *h*

7 Footnote 1*d* and *k*

Tranquilizing Drugs —The use of [tranquilizing] drugs rests on the premise that psychiatry deals with 'mental illness and that such illness presents a problem essentially analogous to that encountered in medicine (and particularly in infectious disease) There is evidence to suggest that this "medical" model of behavioral disturbance is inadequate and misleading If such disturbances do not constitute 'diseases' which manifest themselves in certain "signs" and 'symptoms," then measures based on this concept are likely to be faulty and probably harmful to patient, physician, or society —T S Szasz, M D, Some Observations on the Use of Tranquilizing Drugs, *A M A Archives of Neurology and Psychiatry,* January, 1957

NEUROLOGICAL MANIFESTATIONS AFTER ANTIHYPERTENSIVE THERAPY WITH MECAMYLAMINE

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and
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• *Severe neurological manifestations including depression, agitation, euphoria, hallucinations, hyperreflexia, and especially a coarse, flapping tremor were seen in eight patients who had been receiving mecamylamine and hydralazine for the treatment of malignant hypertension Analysis of the circumstances make it unlikely that the existing azotemia, the administered hydralazine, or possible vascular disease of the brain could be the causes of this syndrome The mecamylamine was given in doses ranging from 48 mg orally to 430 mg parenterally per day In one patient the existing chronic glomerulonephritis progressed to a fatal anuria, and in one other a widespread arteriosclerosis and advanced arteriolar nephrosclerosis terminated in hyperpyrexia and coma In the six patients who survived, however, withdrawal of the mecamylamine was followed by disappearance of the symptoms within two weeks*

In hypertensive patients it is usually possible to produce autonomic blockade and lowered blood pressure with quaternary ammonium compounds, such as hexamethonium and pentolinium salts Except for fibrinous pneumonitis, which has become vanishingly rare,[1] most toxicity is directly attributable to autonomic blockade and includes excessive hypotension, paralytic ileus, and urinary retention as well as annoying but less dangerous manifestations of parasympatholysis Uneven and unpredictable absorption of quaternary ammonium compounds from the gastrointestinal tract is blamed for many of the toxic effects The secondary amine, mecamylamine hydrochloride, is pharmacologically similar but has the advantage of being more completely absorbed when taken by mouth [2] Unfortunately we have observed eight patients develop marked tremor, mental changes, or both while receiving mecamylamine The toxic symptoms have appeared suddenly and without warning Characteristically the tremor varied from coarse to flapping and involved all muscle groups, being particularly evident in the extremities, it disappeared during sleep and was worsened by voluntary activity, several times to the extent of preventing the patient from feeding himself Mental changes have included irritability, agitation, depression, hallucinations, and lethargy progressing to coma The only concomitant physical findings were hyperreflexia in two patients and hyperreflexia plus clonus and pathological toe and finger signs in another No laboratory changes were noted

All the patients involved had malignant stages of hypertension, as manifested by hemorrhagic and exudative retinitis, high fixed diastolic pressure, and proteinuria, moreover, in all of them the disease had progressed to the point of azotemia in the absence of clinically evident cardiac failure Only one, however, had more than 100 mg of nonprotein nitrogen per 100 ml of plasma at the time when toxic symptoms appeared, and none had any of the other usual manifestations of clinical uremia, such as uremic pericarditis, colitis, pneumonia, or urea frost Except for the first patient, there was no prior indication of cerebral vascular disease or other neurological dysfunction Four patients had had no antecedent drug therapy, and four had previously received pentolinium (bi)tartrate and hydralazine *hydrochloride for considerable periods* Because of the extremely grave prognosis, gradually increasing amounts of mecamylamine were given in an attempt to achieve the desired hypotensive effect The maximum daily intake varied from 48 mg taken orally to 430 mg injected parenterally, and the total intake varied from 285 to 3,890 mg over periods ranging from 2 to 63 days Hydralazine, usually in large doses, was simultaneously administered orally, but clinically the patients' state bore little resemblance to that resulting from hydralazine toxicity [3] Six patients had no residual tremor or mental changes a fortnight after their last dose of mecamylamine The remaining two patients died soon after discontinuing the therapy, one in coma and one with renal failure The severity of hypertension before any treatment is indicated for each patient in the table, which also gives some data on drug dosage and blood pressure before and during mecamylamine therapy Additional information about individual patients follows

Report of Cases

Case 1 —This patient was bedfast and blind when first seen Although symptoms had begun only three weeks previously, there was physical and laboratory evidence of a malignant stage of hypertension (see table) During two months of hospitalization, her diastolic pressure became normal and remained so for the two years that she was treated with pentolinium and hydralazine Over this interval her strength and vision improved until she could do housework and read large print On rehospitalization for radical removal of a mammary carcinoma, funduscopic examination revealed no hemorrhages, exudates, or papilledema However, after she had been without antihypertensive drugs for only 48 hours, this patient had 46 mg of nonprotein nitrogen per 100 ml of plasma, 2+ proteinuria, and a mean diastolic pressure of 148 mm Hg Her second hospitalization was stormy (see figure) On the morning of the sixth day after beginning the second course of mecamylamine, she was found markedly agitated and depressed, fidgeting and crying constantly Hyperactivity of all deep tendon reflexes was present, and a marked coarse tremor of both arms and legs had appeared Movements of the extremities persisted constantly when she was awake and were

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From the Hypertension Division, Department of Internal Medicine, Washington University School of Medicine, and Barnes Hospital While this study was being made, Dr Perry was an Established Investigator of the American Heart Association exaggerated by voluntary activity Simultaneously, definite pathological Hoffmann and Babinski signs plus marked ankle and patellar clonus were observed, inconstant toe signs and ankle clonus had been noted on her second admission to the hospital There were no other new physical or laboratory findings Circulating amounts of sodium, potassium, carbon dioxide, calcium, and phosphorus were normal A magnesium level of 3 7 mg per 100 ml of serum was about twice the normal maximum and, since no magnesium had been administered, was regarded as possibly related to the azotemia Diastolic normotension was rapidly reestablished with the administration of pentolinium and hydralazine plus 1,200 mg of meprobamate (Equanil) per day Except for leukopenia, no further clinical or laboratory abnormalities were noted in the subsequent two weeks, and there was a progressive, simultaneous disappearance of agitation, depression, tremor, and neurological findings The number of granulocytes, which had decreased from 10,000 to 500 per cubic millimeter of blood during the 10 days of meprobamate therapy, returned to the previous value six days after the drug was withdrawn There were no associated changes in blood pressure

*Data for Eight Patients with Malignant Hypertension Who Developed Neurological Manifestations After Administration of Mecamylamine**

Case no	1	2	3	4	5	6	7	8
Age yr	40	46	37	24	59	37	41	33
Sex	F	F	F	F	M	M	M	F
Period Before Therapy								
Mean supine systolic pressure mm Hg†	275	201	242	210	220	202	254	207
Mean supine diastolic pressure mm Hg†	160	121	162	163	151	133	171	136
Fundal hemorrhages exudates papilledema	HE‖	HEP	HE	HEP	HEP	0	HEP	HEP
Proteinuria	4+	2+	3+	2+	2+	±	3+	2+
15-min excretion of PSP‡ (IV) %	8	1	25	0	20	35	15	15
Plasma nonprotein nitrogen mg /100 ml §	38	66	28	147	93	20	37	36
Period Before Mecamylamine Therapy								
Length of therapy days	732		253			801	752	
Mean pentolinium (bi)tartrate (oral) mg /day	670		970			860	3 100	
Mean hydralazine hydrochloride (oral) mg /day	250		750			625	1 000	
Mean supine systolic pressure mm Hg	141		157			149	164	
Mean supine diastolic pressure mm Hg	79		98			97	99	
Period of Mecamylamine Therapy								
Period of mecamylamine before symptoms days	6	43	2	16	16	18	63	31
Total mecamylamine hydrochloride mg	645	1 804	795¶	805	385	9 0	3 890	1 345
Maximum mecamylamine (oral) mg /day	170	72	430¶	75	48	90	100	130
Concomitant hydralazine (oral) mg /day	600	750	1 800	150	600	600	1 000	900
Concomitant plasma nonprotein nitrogen mg /100 ml	55	76	8[illegible]	87	40	134	34	16
Concomitant mean supine systolic pressure mm Hg	176	158	276	135	135	151	155	150
Concomitant mean supine diastolic pressure mm Hg	121	101	128	90	80	106	99	85
Period for symptoms to disappear after discontinuation of mecamylamine therapy days	14			4	4	10	7	14

*Dosage and blood pressure data before administration of mecamylamine apply to period of optimal control immediately after initiation of antihypertensive therapy Similarly dosage and blood pressure as well as nonprotein nitrogen data during mecamylamine therapy apply to period immediately before discontinuation of mecamylamine therapy when dosage was maximal

† Means of from 12 to 35 supine readings

‡ PSP = phenolsulfonphthalein

§ Maximum normal concentration of nonprotein nitrogen in plasma is 25 mg /100 ml by technique of Somogyi (J Biol Chem 86 655 1930)

‖ H = hemorrhages E = exudates P = papilledema

¶ Intramuscularly

In the figure blood pressure and drug intake are shown plotted against time for this patient The left part of the curve deals with the hospitalization in 1954 and shows the hypertension before therapy as well as the control achieved by pentolinium and hydralazine The right part of the curve deals with the course in 1956 and begins 10 days before the second hospitalization during which there were three episodes of hypertension The first episode occurred when all medication was stopped in error just prior to entry the second occurred after operation when measures for controlling the blood pressure were temporarily discontinued and the third occurred when drugs were withdrawn in hopes that urinary retention would vanish The extremely rapid rise in blood pressure when medication was withheld after two years of excellent control is striking Tolerance to the combination of ganglionic blocking agents and hydralazine after temporary cessation of therapy has been noted [4] The ineffectiveness of previously antihypertensive doses of pentolinium is evident and it was even more striking in the third patient

All medication indicated in the figure was oral, and the doses were given in terms of the hydrochlorides for mecamylamine and hydralazine and the bitartrate for pentolinium All daily blood pressures shown for the hospital period were means of 6 to 24 determinations taken with the patient in the supine position just before the drugs were administered Daily blood pressures shown for the period at home were means of five determinations taken with the patient in a sitting posture just before drugs were taken The final month of each admission is not indicated, because it was a convalescent period when no further significant changes in blood pressure occurred

CASE 2 —This patient had had headaches and amblyopia for four months when oral therapy with mecamylamine and hydralazine was begun After four weeks, near normotension was maintained, but it was associated with an unusually severe mental depression that caused the patient to require tube feeding For two additional weeks, blood pressure and drug dosage remained essentially constant, with no significant change in azotemia or circulating electrolytes, then one morning the patient was found to be lethargic and disoriented There was a marked coarse tremor which became more flapping in character during the day and which primarily involved the extremities The patient became increasingly hyperactive, thrashing about constantly and jerking her arms and legs, she made some coordinated movements, such as pulling her hair All antihypertensive medication was stopped and 375 mg of amobarbital (Amytal) sodium was given intravenously during a period of 30 minutes without obvious effect Neurological examination revealed only hyperreflexia Except for the lowered blood pressure no other changes in physical signs had occurred since admission Circulating amounts of sodium and carbon dioxide were normal There were 9 500 leukocytes per cubic millimeter of blood without any preponderance of young granulocytes Two blood cultures were sterile but the Proteus organism present in the urine for several weeks persisted there The pressure of the cerebrospinal fluid was not increased, nor was there any pleocytosis or excess amount of protein Within 36 hours the temperature gradually rose to 41 C (105 8 F) and the lethargy deepened into coma with the only movement being marked flapping tremor of arms and legs During the remaining 12 hours of life normotension was sustained without evidence of shock there was no increase in azotemia, blood cultures continued sterile leukocytosis failed to appear, and the concentration of circulating electrolytes was not altered At autopsy no lesion of the nervous system was found There was advanced arteriolar nephrosclerosis with a total renal weight of 180 Gm , and cardiomegaly, with a total cardiac weight of 400 Gm , in addition moderate and advanced arteriosclerosis was widespread

CASE 3 —This patient began treatment with pentolinium and hydralazine a year after a bilateral thoracolumbar sympathectomy for a malignant stage of hypertension Eight months later she had largely discontinued therapy and was rehospitalized, with a mean supine blood pressure of 250/150 mm Hg, hemorrhagic and exudative retinitis without papilledema, 2+ proteinuria, and 59 mg of nonprotein nitrogen per 100 ml of plasma When 1,800 mg of pentolinium and 1,800 mg of hydralazine administered orally per day failed to lower her diastolic pressure, a parenteral injection of mecamylamine every two hours was substituted for pentolinium, without change in the hydralazine intake The mecamylamine dosage was rapidly increased for two days, but the drug was withdrawn after successive doses of 100, 110, and 120 mg produced obtundity, somnolence, and hallucinations, without diminishing the hypertension, altering the normal concentration of circulating electrolytes or causing other evident clinical change Within 24 hours the mental abnormalities had cleared Four days after the last dose of mecamylamine, twitching of the face and upper extremities was observed, however, by then the nitrogen retention had doubled The coarse tremor worsened during the next week as the patient became anuric Autopsy revealed chronic glomerulonephritis without arteriolar necrosis The heart weighed 420 Gm , and there was anasarca but no anatomic lesion of the nervous system

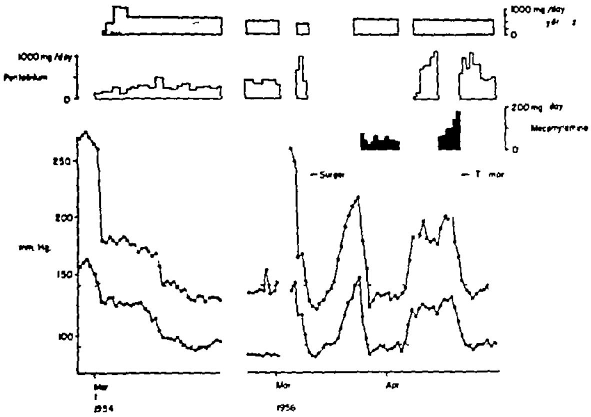
CASE 4 —This patient was markedly azotemic without cardiac insufficiency Sixteen days after starting mecamylamine and hydralazine therapy she was normotensive and less azotemic however, at this time a moderately coarse, generalized tremor which did not interfere with normal activity, suddenly appeared Within three days of the substitution of pentolinium as the ganglionic blocking agent, the tremor had lessened considerably, at this time there was approximately 0 1 mg of mecamylamine per 100 ml of plasma and 0 4 mg of the agent per 100 ml of urine In another 24 hours the tremor had vanished, and no more of the drug could be measured in body fluids No concomitant changes were noted After a month of normotension maintained with orally administered pentolinium and hydralazine, the patient returned home, her nonprotein nitrogen level being only 36 mg per 100 ml of plasma

CASE 5 —This patient was found to be alternating between extreme euphoria and severe depression, manifested by considerable crying on the 10th day after mecamylamine and hydralazine therapy had been instituted Moreover, he had had hallucinations involving a divine visitation the preceding night Administration of mecamylamine was stopped immediately, but it was four days before the mental changes vanished as suddenly as they had come Immediate reinstitution of the previous doses of mecamylamine has maintained normotension for six months and has provoked no further symptoms the patient in the meantime having returned to his job A tremor was never observed The only additional change has been a persistent leukopenia, which was first noted after the patient was temporarily given meprobamate for his mental symptoms and which was not present on his admission to the hospital

CASE 6 —This patient, when first seen, had asymptomatic hypertension which was initially well controlled After an absence of two years, he was found to have a mean resting diastolic pressure of 130 mm Hg hemorrhagic and exudative retinitis with papilledema 2+ proteinuria and 79 mg of nonprotein nitrogen per 100 ml of plasma Oral therapy with mecamylamine and hydralazine resulted in lower blood pressure and greater nitrogen retention On the 18th day of mecamylamine therapy the patient became extremely agitated and depressed allowing no one in his room The following day a generalized coarse tremor and hallucinations appeared, the patient saw reptiles and rodents, which he recognized as unreal No further abnormal physical signs were noted The concentration of circulating electrolytes was normal except for an elevated magnesium level of 3 mg per 100 ml of serum After mecamylamine was replaced by pentolinium, the hallucinations lasted only 24 hours, and within 10 days the agitation and tremor had disappeared The patient was discharged against advice, with slowly increasing renal failure

CASE 7 —This patient had required the administration of extremely large doses of hydralazine and pentolinium for two years to control his blood pressure satisfactorily Therefore, orally administered mecamylamine was substituted as the ganglionic blocking agent Seven weeks after the change in therapy increasing irritability began, and two weeks later a tremor developed which prevented the patient from writing There were no other obvious concomitant changes Administration of mecamylamine was promptly discontinued, and chlorisondamine (Ecolid) chloride therapy was begun Within a week the tremor and irritability were appreciably less and in a fortnight they were gone This patient was the only one whose toxic symptoms did not appear while he was in the hospital

CASE 8 —This patient had few symptoms Normotension was achieved after two weeks of oral therapy with mecamylamine and hydralazine and was maintained by a constant dosage of the drugs for an additional fortnight until the sudden appearance of a progressively increasing tremor of all muscle groups Within 48 hours the tremor had become particularly marked in the upper extremities where it assumed a flapping character and prevented normal eating There were no evident mental changes, and hyperreflexia was the sole associated sign Two weeks after antihypertensive medication was discontinued the patient was discharged from the hospital against advice, without symptoms but with an uncontrolled malignant stage of hypertension There was no abnormal nitrogen retention when the tremor was observed, although azotemia was present until the hypertension was controlled



Blood pressure and drug intake of patient in case 1

Comment

The mechanism by which a secondary amine effects ganglionic blockade is uncertain, that its configuration competitively inhibits the quaternary ammonium ion of acetylcholine would be surprising The neurological changes, particularly the flapping tremor, are suggestive of those seen in hepatic failure and correlated with amounts of circulating ammonia[5] There was no cogwheel rigidity or other sign of Parkinsonism, such as has occasionally been observed after the use of ataraxic agents such as reserpine[6] It should be emphasized that all the patients discussed here, except the seventh, were considered to be critically ill when therapy was started and all presented extremely involved and complicated problems Not only did they have severe malignant hypertension with azotemia, but also large amounts of hydralazine had been administered That some of the observed neurological manifestations were related to nitrogen retention or cerebral arteriosclerosis is possible, however, there were none of the non-neurological findings ordinarily ascribed to uremia and no prior evidences of significant vascular disease in the brain In our experience the tremor and the mental changes which have been cited rarely accompany malignant stages of hypertension and then only just before death, a condition manifestly absent in the six surviving patients We have not seen similar toxic reactions in these or other patients receiving large amounts of quaternary ammonium compounds and hydralazine over long periods of time The failure to reproduce symptoms in the second patient by reexposure to the previous dose of mecamylamine might be related to improved renal function Attempts to reinduce the syndrome in the others by a second course of mecamylamine were precluded either by the precarious state of the patient or by his express desire That toxicity was not seen without a large intake plus renal dysfunction suggests that combination of excessive absorption and poor excretion is required Further factors may be involved, since at least one azotemic patient has daily taken 150 mg of mecamylamine by mouth for four months without trouble

Summary

Eight patients with malignant stages of hypertension that had progressed to azotemia received from 48 mg orally to 430 mg parenterally of mecamylamine per day plus large doses of hydralazine In from 2 to 63 days a coarse tremor occurred in seven patients and mental changes in five Except for two patients who died soon after the symptoms appeared, withholding the drug resulted in disappearance of the symptoms within two weeks

600 S Kingshighway Blvd (Dr Perry)

This study was performed under a grant-in aid from the National Heart Institute, United States Public Health Service and the Lasdon Foundation

The mecamylamine used in this study was supplied as Inversine by the Merck Sharp & Dohme Division of Merck & Co Inc , of West Point, Pa

The method used for estimating levels of mecamylamine in body fluids was worked out by J E Baer, of the Merck Sharp & Dohme Division of Merck & Co , Inc , West Point, Pa

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MARCH HEMOGLOPINURIA

REPORT OF FIVE CASES IN STUDENTS AT OHIO STATE UNIVERSITY

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• Dark colored urine and painfully swollen muscles were the essential complaints of five otherwise healthy, athletic students at the Ohio State University The manifestations included albuminuria in all cases in the most severe case, casts and red blood cells were found in the urine and the temperature went up to 100F (37 8 C) The common causative factor proved to be recent exhausting muscular exercise, and recovery was spontaneous The condition is not believed to have been identical with that described by other authors as march hemoglobinuria but a new syndrome termed "exercise myohemoglobinuria "

March hemoglobinuria has been defined as "a condition in which physical exertion gives rise to the passage of a red urine containing hemoglobin in solution ' A comprehensive review of the subject was given by Gilligan and Blumgart of the Harvard Medical School in 1941 [1] Up to this time there had been only 40 cases reported in the literature, mainly German The condition was first described by Fleischer [2] in 1881, 29 cases were precipitated by strenuous walking, while those in 11 athletes followed strenuous runs During the decade after 1941, 33 more cases were reported Chaiken and associates [3] reported two new cases in 1953, increasing the total to 75

Report of Cases

Case 1 —This patient a 21-year-old white male weighing 165 lb (74 8 kg), was first seen in the Ohio State University Health Service on Jan 18, 1954 His chief complaints were painful and swollen muscles and dark-colored urine Urinalysis showed 1+ albumin 3+ hyaline and granular casts, and 2+ red blood cells The patient was asked to bring in a first morning urine specimen on the 19th This showed 2+ albumin, 4+ granular and hyaline casts and 2+ red blood cells The patient's temperature was 100 F (37 8 C) Additional history revealed that approximately 60 hours prior to this visit the patient had been compelled by his active fraternity brothers to get out of bed three times during the night and each time for 30 to 45 minutes to do push ups, knee-bends and so forth At this visit because of the fever and urinary findings of our laboratory, we considered the possibility of an acute glomerular nephritis and hospitalized the student for evaluation

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On the patient s admission to the hospital, urinalysis showed 100 mg of protein per 100 cc occasional coarse and finely granular casts, and 1 to 3 white blood cells and occasional red blood cells per high-power field Other laboratory findings were normal On the second hospital day there was 5 mg of protein per 100 cc and the urine was clear The patient was discharged the third day with a diagnosis of march hemoglobinuria

CASE 2—This patient, a 21-year-old white male weighing 168 lb (76 2 kg) visited the Ohio State University Health Service on Feb 8, 1954 His temperature was 98 4 F (36 9 C), and he complained of red-colored urine for the past 24 hours and stiffness and painful swelling of the thigh muscles He had done 159 knee-bends approximately 60 hours before coming to the University Health Service Urinalysis showed 1+ albumin 2 to 3 white blood cells per high power field, and 1+ squamous epithelial cells A diagnosis of march hemoglobinuria was made

CASE 3—This patient, a 20 year old white male weighing 165 lb , visited the Ohio State University Health Service on Feb 8, 1954 His temperature was 98 6 F (37 C) He had the same complaints as the student in case 2 as a result of having done 150 knee bends Urinalysis showed a trace of albumin and 4 to 5 white blood cells per high-power field Both this patient and the patient in case 2 had been doing knee-bends for fun to see who could do the most

CASE 4—This patient, a 20-year old male weighing 158 lb (71 7 kg), was first seen in the University Health Service on March 3 1955 His chief complaints were painful and stiff arm muscles and dark-colored urine His temperature at this time was 97 F (36 2 C) Three days prior to the visit he had worked out for an hour to 'get in condition' by doing about 200 push ups The muscles of both upper arms were swollen and tense Urinalysis showed 3+ albumin, 1+ granular casts, and 20 to 30 white blood cells per high-power field The muscle soreness and swelling did not disappear until the seventh day

CASE 5—This patient, a 20-year-old white male weighing 135 lb (61 2 kg), visited the Ohio State University Health Service on Feb 10, 1956 His chief complaints were painful and swollen muscles and dark-colored urine History revealed that for the previous three nights he and his fellow pledges had been made to do push-ups, sit-ups and general calisthenics for various periods to the point of exhaustion and with no sleep He noted the dark-colored urine approximately 48 hours after beginning the exercises The biceps, triceps, deltoids and pectoral muscles were tense and swollen Urinalysis showed 4+ albumin occasional granular casts and 0 to 1 white blood cells per high-power field and was negative for occult blood A diagnosis of exercise myohemoglobinuria' was made The patient was asked to return to the Health Service but failed to do so He was also asked to send any of his friends who had been through the same ordeal to the Health Service None showed up, probably because we knew the name of the fraternity and the members feared reprisals

From the table it is concluded that the patient in case 1 had the roughest time, as he had fever and red blood cells in the urine We cannot explain the presence of white blood cells in the urine, except as due to irritation of the bladder or kidneys from the exercise The possibility of previous genitourinary infection was not explored, but, since no bacteria were revealed in any patient and since the urine was within normal limits in two to three days without medication in all these cases, it seems reasonable to conclude that there was no infectious process

Comment

These five cases of march hemoglobinuria syndrome present a similar picture (1) painful, swollen muscle groups, (2) dark, coffee-colored urine, and (3) history of excessive, strenuous exercise within a short period of time Urinalysis in all five cases showed albuminuria and varying numbers of white blood cells Only the patient in the first case had any fever and any red blood cells in the urine All the students were young, healthy males of the athletic type

It is interesting to note that these five cases fall into three categories (1) fraternity initiation hazing, (2) competition between two students for fun to see who had the most endurance, and (3) individual attempt to get into better condition by too strenuous and concentrated physical exercise

In the first case we were misguided because of an inadequate history on the first visit The temperature of 100 F with the urinary findings made us think of an acute glomerular nephritis, even though we knew about the patient s previous strenuous exercise He was then hospitalized with the possibility of that diagnosis We had all heard of march hemoglobinuria, but none of us among the more recent staff members had seen a case One probable case had been seen in the department in the late 1930 s, but it had not been studied or diagnosed and recorded as such After the diagnosis of the first case had been made in the hospital, we were alerted to the possibility of this syndrome and subsequently made the correct diagnosis of the other four cases Treatment in all these cases consisted of bed rest if the patient desired it, administration of aspirin for the alleviation of muscular soreness, and the prohibition of additional exercises

*Similarity of Urinary Findings in Five Cases of March Hemoglobinuria**

	Case No				
	1	2	3	4	5
RBC	++				
WBC	+	2 3	4 5	20-30	0-1
Granular casts	++++			+	+
Albumin	++	+	+	+++	++++

* All patients had painful swollen muscles and dark colored urine Bacteria were not found in urine of any patient Patient in case 1 was only one with elevated temperature (100 F)

Palmer and Mitchell [4] give a general classification of the paroxysmal hemoglobinurias as follows (1) paroxysmal hemoglobinuria from chilling (syphilitic type), (2) paroxysmal nocturnal hemoglobinuria in chronic hemolytic anemia (Marchiafava-Micheli disease), (3) favism (sensitivity to products of the plant Vicia faba [fava]), (4) myoglobinuria ('paralytic hemoglobinuria'), (5) march hemoglobinuria, and (6) miscellaneous (toxic) hemoglobinurias, as in severe infections, some poisonings, and incompatible transfusions Our five cases do not fall into any of these general categories, so we might add a seventh category —myohemoglobinuria, arising from the breakdown of myohemoglobin due to severe, strenuous exercise over a short period of time, manifesting itself by painful, swollen muscle groups with dark-colored urine

In all the literature available to review, this type of hemoglobinuria has not been discussed The patients in the cases reviewed have shown a spontaneous hemoglobinuria within a few hours after the exercise In some patients it has been possible to reproduce the syndrome, while in others it has not Unfortunately we did not have the privilege of asking our students to repeat their performances, nor did we have the laboratory facilities for doing the complete blood, urine, and other studies done by other authors We must rely on our relatively less complete laboratory and clinical findings

In the past, the syndrome has almost always been associated with exercises performed in the erect posture, such as marching or running The presence of a lumbar lordosis or the assumption of a lordotic posture has been said to be a contributing factor in many of these cases Both these assumptions were found to be false in a case reported by Chaiken and associates[3] of a soldier who developed hemoglobinuria after crawling through the infiltration course The soldier had had two similar episodes after swimming It was the opinion of these authors that hemoglobinuria never occurred in the absence of exercise After their paper had been submitted for publication, the soldier mentioned developed a spontaneous recurrence of hemoglobinuria without exercise Prior to this time, he had been in apparent remission for nine months after corticotropin (ACTH) therapy and had been performing exercises in all positions without a recurrence of hemoglobinuria

The mechanism of hemoglobinuria is still unknown, but it is generally considered that there is blood destruction intravascularly, i e, that all the hemoglobin from red blood cell destruction appears in the plasma, giving rise to hemoglobinemia We believe that in our cases there was a breakdown of the muscle fibers due to the extreme and excessive exercise, so that the myohemoglobin was released into the blood plasma and then excreted through the kidneys, causing the dark-colored urine, which gave the diagnosis of march hemoglobinuria We believe that this syndrome should be called 'exercise myohemoglobinuria'

In the cases of march hemoglobinuria completely studied by Gilligan and Blumgart,[1] it was found that the hemoglobin appeared in the urine one to three hours after exercise, thus, the disorder developed almost immediately In our cases the dark-colored urine appeared 24 to 48 hours after exercise, the urine was clear 48 to 72 hours after the onset of the discoloration We think that this is an important point in the diagnosis of this type of hemoglobinuria

It is interesting to note that all the patients whose cases have been reported in the literature have been young, athletic white men No cases have been reported among women or in any other race than the white It would be interesting to conduct an experiment with a group of college students, male and female and of different races, having them do excessive, strenuous exercises, such as push-ups, sit-ups, and knee-bends, for a short period of time to see if the myohemoglobinuria could be duplicated, as in the five students we have seen

We feel sure that other students with march hemoglobinuria have come to the Health Service, but we have missed them, either because of inadequate history taking or because of failure of the student to present all the facts We also feel that there have been students with this disorder at the university who have not visited the Health Service because of the mildness of the symptoms or because of fear of getting into trouble with their fraternities, where such hazing is not supposed to occur We would like to point out that this type of hemoglobinuria is a benign condition with short duration, but it should be recognized and differentiated from the other types enumerated earlier in this discussion

Summary and Conclusions

Five cases of spontaneous hemoglobinuria were found among Ohio State University students All cases have been associated with excessive, strenuous exercises within a short period of time Complaints of painful, swollen muscle groups and coffee-colored urine developed 24 to 48 hours after exercise The findings in the five cases are submitted as a new syndrome called "exercise myohemoglobinuria"

Addendum

During the winter quarter, 1957, three additional cases of exercise myohemoglobinuria were seen in the University Health Service These three male students had participated in fraternity initiations

J W Wilce M D Director, Health Service, Ohio State University, and Karl H Feistkorn M D, of the Clinical Staff, cooperated in making the report of these five cases

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Tendon Tunnel Syndromes—Wherever a tendon crosses a joint it needs a fibrous tunnel to prevent it from bow-stringing Within this tunnel the tendon is covered by a synovial sheath to allow it to slide smoothly Inflammation of the synovial sheath (tenosynovitis) results in painful movement Normal tendon action, however, is more often impeded by thickening of the fibrous sheath or of the tendon itself, in either case there is not enough space in the tunnel The term stenosing teno-vaginitis" is sometimes used to describe these tendon-tunnel syndromes The commonest examples are clicking finger, trigger finger, clicking thumb, congenital flexion of the thumb, and de Quervain's disease Nerves also are confined within fibrous tunnels where they cross joints There are two sites where the tunnel may be too small at the elbow, giving rise to ulnar neuritis, and in front of the wrist, leading to median neuritis—A G Apley, M B, Tunnel Syndromes in the Upper Limb, *The Practitioner*, December, 1956

STUDIES ON SIGNIFICANCE OF BIOLOGIC FALSE-POSITIVE REACTION

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and
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• *The Treponema pallidum immobilization test, a specific means of diagnosing the biologic false positive reactor, will separate syphilitic from non syphilitic patients, within minor limitations However, the diagnosis of biologic false positive reactor raises significant questions concerning the patient Of 555 patients having this diagnosis, 21 6% had systemic disease in one form or another, 2% having systemic lupus erythematosus Alertness to the finding of a biologic false positive reaction is indicated, especially in young women, such findings require careful follow up, including a search for vague signs and symptoms of a previously undiscovered systemic illness*

Sufficient experience has now accumulated to establish that the results of the Treponema pallidum immobilization test will separate the syphilitic from the biologic false-positive reactor within minor limitations to be mentioned shortly The evidence on which this statement is based has been previously reported both by our group [1] and by others [2] Included in this evidence are the positive results of the Treponema immobilization test in patients with proved syphilis (except where treatment was given early in the course of the disease), the reproducibility of the results in repeated specimens from the same patient, and the consistently negative results in patients presumed to be normal and in those with diseases other than the treponematoses In our experience there is a probable error of about 1 2%, which for a biological test justifies the conclusion that the test is highly specific

Our limited experience with the T pallidum complement-fixation test, which we recently reported at the International Symposium on Venereal Diseases suggests that this test may also have a high order of specificity This agrees with the experience with this test reported by others [3] This test is based on a different antibody from that of the Treponema immobilization test, which may result in slight differences in end-results Once these are fully established, the complement-fixation test should prove to be of great value, as it is simpler than the Treponema immobilization test and thus more suited to use in a routine laboratory

In the course of our studies with the Treponema immobilization test we were impressed with the high incidence of biologic false-positive reactions in patients with the collagen diseases, especially systemic lupus erythematosus These cases were largely found among patients who, because of their illness, had required hospital admission These findings were published in 1954 [3] The probable existence of biologic false positive reactions in patients with systemic lupus erythematosus had been recognized by observers [4] for a number of years Moore and Mohr,[5] in 1952 emphasized the collagen group of diseases as a cause of biologic false-positive reactions in a study controlled by the Treponema immobilization test

Aware of the potential seriousness of the diagnosis of biologic false-positive reactivity and aware of the probable relative increase in this diagnosis as active syphilis becomes less prevalent, we started the study to be reported here This study was designed to gather evidence to assist the physician in the management of the individual patient with biologic false-positive reaction Our aim was to study as large a group as feasible, gathered not only from hospital patients but also from patients discovered to have biologic false-positive reactions in routine examination By this means the findings should more nearly represent the over-all picture and not be outweighed by the findings in those already ill

The majority of our patients were studied in the Vanderbilt Clinic and the Presbyterian Hospital The remainder were studied by various physicians and the results of these studies made available to us All of the Treponema immobilization tests were done in our laboratory at Columbia University, and serologic tests for syphilis were done on the same samples in the same laboratory Results of serologic tests for syphilis done elsewhere were used to round out the picture of the duration of the positive serologic test for syphilis

TABLE 1 —*Classification of Patients with Positive Serologic Tests for Syphilis (STS) and Negative Treponema Pallidum Immobilization Tests*

Group		Known Duration of Positive STS Finding: More than 6 Mo	Less than 6 Mo	Temporary	Total: No	Total: %
Systemic disease		57	63	0	120	20 2
No systemic disease		188	247	24	459	77 3
Old syphilis treated early		9	6*	0	15	2 5
Total	No	254	316	24	594	100
	%	42 8	53 2	4 0	100	

* Negative STS after original treatment Present positive findings of less than six months duration

Material

In table 1 there are listed the findings in 594 patients who had positive serologic tests for syphilis but negative Treponema immobilization tests They are divided into two major groups The first group had a systemic disease, and in the large majority of these patients the positive serologic test for syphilis was discovered in the course of examinations on hospital admission The second major group were patients whose positive

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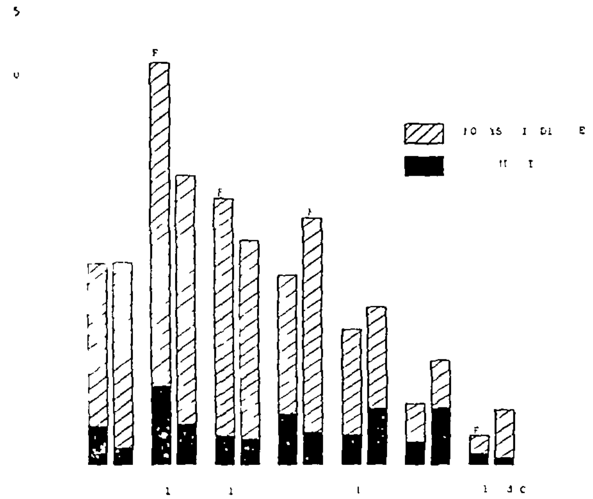
From the Department of Dermatology, College of Physicians and Surgeons Columbia University, the Presbyterian Hospital and the Vanderbilt Clinic serologic test for syphilis was discovered as a result of routine tests taken for admission to the armed forces, jobs, marriage, and other reasons Twenty-four patients with temporary false-positive reactions are listed but will not be further considered in this paper Fifteen patients who were treated in the early stages of syphilis, often years ago, who today have positive serologic tests for syphilis and negative Treponema immobilization tests, are listed and will be discussed later

The groups are further divided into those whom we have followed for more than six months and in whom the serologic test for syphilis has remained positive and those whom we have followed for less than six months Although no definite conclusions can be drawn from the findings in the groups in which the known duration of the positive reaction is less than six months, they are of value in determining the known age of onset of the positive reaction, the sex of the person tested, and the presence or absence of systemic disease Careful history taking and physical examination were done in all patients to determine any evidence of previous syphilitic infection or vague signs of systemic disease All of the usual causes of temporary false-positive reaction were excluded Three patients with leprosy or malaria and in whom the duration of the positive reaction was unknown were not listed From our experience we think it is reasonable to presume that the large majority of these patients will prove to have persistent biologic false positive reactions There were 57 patients with systemic disease among 245 patients with persistent biologic false-positive reactions Thus, 23.2% of this group had a systemic disease The percentage of patients having systemic disease is 20.3 of the group in which the known duration of the positive serologic test for syphilis with a negative Treponema immobilization test is less than six months There is thus little difference in the percentage with systemic disease in the two groups



Percentage of male (M) and female (Fe) patients in each decade according to age at time of first known positive serologic tests for syphilis

The 15 patients listed as having had syphilis that was treated early are excluded from the following tables They are of interest since, were the history not known, they would be classified as biologic false positive reactors In fact, seven patients were treated for early syphilis a number of years ago, the earliest in 1917 and the rest scattered through the years until 1946 After treatment, and often for many years, the serologic test for syphilis remained negative, only recently becoming positive These presumably could be biologic false-positive reactors, as there was no evidence of reinfection Five patients were treated in the past three years, probably early enough in the course of the disease to prevent the development of the Treponema immobilization antibody In fact, one of these patients has a positive T pallidum complement-fixation test to support this view The remaining three patients have had positive serologic tests for syphilis since their original treatment

In the figure, the distribution of the patients thought to have biologic false-positive reactions is presented to show the sex and the age at which the positive reaction was first discovered Although the sex and age findings for the group in which the known duration of the positive reaction was more than six months and the group in which it was less than six months have been combined in preparing the figure, these groups were analyzed separately The percentages of males and females in the two groups showed no statistically significant differences except in the patients with systemic disease Of the patients with positive serologic tests for syphilis for more than six months 84% were females while in the group where the known duration of the positive reaction was less than six months the percentage of females was 67% The ratio of females to males is not evident from the figure, as it is prepared from percentages There was, however, a decided preponderance of females over males There were 395 females (71%) to 160 males (29%) in the entire series In the majority of patients the age of the known onset of the positive serologic test for syphilis, as can be seen from the bar diagram, is from 20 to 50 in both sexes The onset of the positive reaction in the females was found to occur particularly frequently between the ages of 20 and 30

In table 2 are listed the findings in percentages of the three serologic tests for syphilis performed on the same specimens in which the result of the Treponema immobilization test was negative The percentage of patients in whom the Mazzini, Venereal Disease Research Laboratory, and Kolmer tests were all positive is somewhat higher in the group with systemic disease than in those without systemic disease The group in which the Mazzini test alone was positive, while the Kolmer and Venereal Disease Research Laboratory tests were negative, was the second largest The necessity for including the results of the Mazzini test was borne out in a study previously published[8] It showed that in 1,300 specimens from patients with positive Treponema immobilization tests the Mazzini test was negative in only 5%, while the Kolmer and Venereal Disease Research Laboratory tests were negative in approximately 20%

In table 3 are listed the systemic diseases that in this study were associated with a biologic false-positive reaction Some of the diagnoses are of necessity vague and are purposely so listed The following diseases were also found, with one female patient having each disease congenital hemolytic anemia, cryoglobulinemia, lymphatic leukemia, infectious mononucleosis, pemphigus vulgaris, histoplasmosis, glomerulonephritis, post toxemic brain damage, meningioma, postencephalitic Parkinsonism, optic (retrobulbar) neuritis, subarachnoid hemorrhage, para-aortic mass, and adrenal cortical hypofunction (Addison's disease) The following diseases occurred in one male patient each pernicious anemia, hemolytic anemia with cold agglutinins, Vogt-Koyanagi syndrome, fibrosis and calcification of the pericardium, lower motor neuron damage, and metastatic carcinomatoses

Twelve patients had systemic lupus erythematosus, as established by the finding of the L E cell Nine had rheumatoid arthritis, and 11 had diseases of the liver Of these 11, 6 had Laennec's cirrhosis and one each, amebic hepatitis, obstructive jaundice, and coarse nodular (postnecrotic) cirrhosis The remaining two had viral hepatitis The patients listed as having rheumatic heart disease were patients with history of that disease and not patients with acute attacks at the time our tests were taken Two patients listed as diabetics also had myocardial infarction, and one patient listed as having discoid lupus erythematosus also had diabetes

Analyzed, but not listed, were the ages at which the serologic test for syphilis was first found to be positive In the group with systemic lupus erythematosus there were six patients, all females, who developed their disease from age 25 to 30 The test had been known to be positive from 2 to 21 years, the average being about 6 years In the six patients with this disease in whom the duration of the positive serologic test for syphilis is unknown, the age at the verified onset of the disease varied from 11 to 54 years All were females Of the patients listed as having rheumatoid arthritis, seven were 45 to 70 years of age and two were near 30 years of age The serologic test for syphilis had been known to be positive from 1 to 15 years The group of patients with myocardial infarction were above 50 years of age with one exception The ages of the remainder varied, depending largely on the diagnosis, the group with vague symptoms being 20 to 40 and the group in which the diagnosis was definite being older

TABLE 2 —*Results of Mazzini, Venereal Disease Research Laboratory (VDRL) and Kolmer Tests in Biologic False-Positive Reactors With and Without Systemic Disease*

Mazzini	VDRL	Kolmer	Systemic Disease		No Systemic Disease		Total	
			No	%	No	%	No	%
Pos	Pos	Pos	54	45 0	149	34 3	203	36 6
Pos	Neg	Neg	27	22 5	183	42 1	210	37 8
Pos	Pos	Neg	18	15 0	36	8 3	54	9 7
Pos	Neg	Pos	12	10 0	48	11 0	60	10 8
Neg	Pos	Pos	0	0	1	0 2	1	0 2
Neg	Pos	Neg	2	1 7	3	0 7	5	0 9
Neg	Neg	Pos	1	0 8	14	3 2	15	2 7
Pos	Pos	AC*	6	5 0	1	0 2	7	1 3
Total			120	100	435	100	555	100

* Anticomplementary

A variety of laboratory tests were performed on certain of the patients both with systemic and with nonsystemic disease in an effort to find which tests should be done in a person with an uncomplicated biologic false-positive reaction These included complete blood cell counts, urinalyses, cold agglutinations, protein partitions, heterophil antibody agglutinations, and Brucella agglutinations, cephalin-flocculation, thymol-turbidity, Coomb s, and L E tests, determination of antistreptolysin titers, erythrocyte sedimentation rates, electrophoretic patterns and basal metabolic rates, electroencephalographic and electrocardiographic studies, and determination of blood cholesterol, alkaline phosphatase, cryoglobulin, and bilirubin levels The number of these tests has been limited largely because of expense An analysis of our findings shows that the cephalin-flocculation and thymol-turbidity tests, protein partition, and determination of the sedimentation rate are the studies in which abnormalities will most probably be found Approximately one-third of the patients with no systemic disease in whom these tests were done showed abnormal findings This was to be expected, as all of these tests may be influenced by abnormal globulins As was to be anticipated, approximately three-fourths of the patients with systemic disease had abnormal findings in this group of tests

TABLE 3 —*Systemic Diseases Associated with Biologic False-Positive Reaction*

	Serologic Test for Syphilis Positive			
	More Than 6 Mo		Less Than 6 Mo	
	Female	Male	Female	Male
Systemic lupus erythematosus with positive L E cells	6		6	
Diseases of liver	2	1	4	4
Rheumatoid arthritis	7	1	1	
Rheumatic heart disease	4	1	3	1
Diabetes mellitus	2		3	1
Myocardial infarction			2	3
Tuberculosis	3		1	
Periarteritis nodosa			1	1
Discoid lupus erythematosus			1	1
Subacute bacterial endocarditis		1		1
Convulsive disorders	4			1
Possible collagen disease	3		4	
Possible multiple sclerosis	4			
Chronic arthritis	2		2	1
Arthritis with facial eruption	1		1	
Dizziness headache vertigo		2	1	
Hepatosplenomegaly and pleurisy	1	1		
Fever of unknown origin			1	1
Vague symptoms	2		4	2
Other	7	2	7	4
Total	48	9	42	21

See text

Leprosy is the one disease of known etiology associated with a high degree of biologic false-positive reactions This disease thus offered an opportunity to study the question whether the biologic false-positive reaction is coincidental or related to some abnormal globulin Sister Hilary Ross[7] of the Carville Leprosarium kindly made available the results of cephalin-flocculation and thymol-turbidity tests and protein fractionations in a group of 35 patients with lepromatous leprosy and negative serologic tests for syphilis and in 44 patients with the same disease and positive serologic tests for syphilis The group of 35 patients with negative reactions showed 6 negative cephalin-flocculation and 22 negative thymol-turbidity tests, while the group of 44 patients with positive reactions showed only 2 negative cephalin-flocculation tests and 14 negative thymol-turbidity tests Thus, these tests were found to be positive in a high percentage of patients with negative serologic tests for syphilis but in a somewhat higher percentage when the serologic test was positive Twice as many patients with positive serologic tests for syphilis showed increased alpha and gamma globulins as did those patients with negative reaction The significance of this requires further study

Comment

The Treponema immobilization test has in the last six years given physicians for the first time a specific means for making the accurate diagnosis of biologic false-positive reaction Once this diagnosis is made, the question naturally arises as to the significance of this diagnosis in a given patient That it is a diagnosis of possibly serious import is evident from even a casual glance at the figures presented here Of 555 patients reported here, 21 6% already had systemic disease in one form or another

The role of systemic lupus erythematosus, as being responsible for a portion of the systemic disease associated with biologic false-positive reactions, has been emphasized by a number of investigators, including those of our group Since the discovery of the L E cell phenomena a few years ago, much experience has accumulated concerning this disease Haserick and Long[8] and others[5] have reported that many of the patients with systemic lupus erythematosus had passed through a period of varying length in which their symptoms and signs resembled many diseases and definite diagnosis was not possible This has been called the lupus diathesis

Two per cen of the patients reported here had systemic lupus erythematosus Two per cent of the patients with biologic false-positive reactions reported by Ledbetter[9] had collagen disease If we include all those patients with rheumatoid arthritis, anemias, vague symptoms, and neurological signs, we have an additional 13% Thus, only 15% of the total group had diseases possibly associated with the lupus diathesis or systemic lupus The remainder of patients with systemic disease had diseases often to be anticipated in their particular age group and not apparently influenced by the factors causing the biologic false-positive reaction

To gather further evidence on the probability of systemic disease developing in those patients now apparently well we analyzed the number of years the serologic test for syphilis had been known to be positive In the group with systemic disease the patients were known to have had positive reactions, now judged to be biologic false-positive reactions, for from 1 to 40 years, with a mean duration of 4 years In the group without systemic disease the period of known duration of the positive reaction varied from 6 months to 31 years, with a mean of 2 years There is a sufficient number of patients with a known long duration of the positive reaction to suggest that this phenomenon may be borne with no apparent detrimental effect in a sizeable group of patients

However, the high percentage of some abnormal laboratory finding or findings, even in the group with no apparent sign of systemic disease, offers additional evidence that the diagnosis of a biologic false-positive reaction must be given serious consideration It is yet too early to be able even to give accurate percentages of those who will or will not develop serious disease At this time we feel that alertness to the findings listed below is indicated

At the present state of our knowledge certain findings seem to be of significance The diagnosis of biologic false-positive reaction is of serious significance It is more common and of more concern in the female This is often based on the high incidence of systemic lupus erythematosus in the young female A careful history, examination, and follow-up for vague signs and symptoms of joint pains, unexplained bouts of fever, and easy tiring is mandatory Additional laboratory studies highly desirable are determination of the sedimentation rate, cephalin-flocculation and thymol-turbidity tests, and complete blood cell counts If these tests, as well as the history and the physical examination, are normal, then the patient may be observed at yearly intervals, with instructions to return earlier if symptoms appear If they are positive, more careful and frequent observation is indicated

Summary

Of 245 patients with persistent biologic false positive reactions, 23 2% had systemic disease Females accounted for 71% of the total series and 84% of those with systemic disease The known onset of the biologic false-positive reaction reached its highest incidence in persons from 20 to 30 years of age The presence of a biologic false-positive reaction manifested only by a positive Mazzini test is valid Two per cent of the total series have developed systemic lupus erythematosus An additional 13% could loosely be classified as having lupus diathesis One-third of patients with biologic false-positive reaction with no apparent clinical illness were found to have one or more positive laboratory findings indicative of abnormal globulins The diagnosis of biologic false-positive reaction requires careful history taking and physical examination for vague signs and symptoms, especially in young women A minimum laboratory examination should include determination of the sedimentation rate, cephalin-flocculation and thymol-turbidity tests, and protein partition

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CLINICAL NOTES

BRAIN ABSCESS SEVEN YEARS AFTER A POTTS ANASTOMOSIS IN CASE OF TETRALOGY OF FALLOT

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The predilection of patients with tetralogy of Fallot to develop brain abscess is well established In a review of the literature concerning the association of brain abscess with congenital heart disease, Gluck and co-workers [1] were able to find reports of 20 cases of brain abscess associated with tetralogy of Fallot Clark and Clarke [2] reported 19 additional cases, in several of which brain abscess was discovered after cardiac surgery Ingraham and Matson [3] have pointed out that, when focal neurological signs, convulsions, or symptoms of increased intracranial pressure are present in a patient with either tetralogy of Fallot or certain other forms of congenital heart disease, the diagnosis of brain abscess should be considered

It is important to determine to what extent the surgical procedures now used in patients with tetralogy of Fallot alter the propensity of these patients to develop brain abscess We wish to report a case in which cerebral abscess developed seven years after a successful Potts anastomosis for tetralogy of Fallot had been performed

Report of a Case

A 10 year-old girl was admitted to the children s division of the Cook County Hospital with a 10-day history of progressive lethargy, headache, vertigo and anorexia The patient had a known congenital heart disease When she was 3 years old, the diagnosis of tetralogy of Fallot had been established and a Potts anastomosis had been performed After the operation, there had been marked improvement in her condition Cyanosis was no longer present at rest, and only mild cyanosis was evident with moderately severe exercise

On the patient s admission physical examination revealed a thin girl who was extremely lethargic and unable to walk Papilledema was noted in the right eye Both pupils reacted to light and accommodation Hemiparesis was present on the left, with some spasticity in the left arm and left leg The deep reflexes on the left were hyperactive Ankle clonus was present on the left The blood pressure was 110/70 mm Hg the pulse rate was 96 per minute and the temperature was normal The heart was not enlarged to percussion A systolic thrill was present at the third and fourth left interspace parasternally A grade 4 systolic murmur, which transmitted widely, was heard maximally in the same area A systolic and diastolic murmur, machinery-like in character, transmitted widely and was heard best in the second left interspace parasternally

Hemoglobin level was 14 Gm per 100 ml, with red blood cells numbering 4,430 000 per cubic millimeter and white blood cells 16 000 per cubic millimeter with 68% polymorphonuclear, 2% band cells, and 30% lymphocytes Urinalysis was negative The blood culture was sterile Beta-hemolytic streptococci were isolated from a throat culture The cerebrospinal fluid, obtained by lumbar puncture, was opalescent, containing many crenated red blood cells The spinal fluid sugar level was 68 mg per 100 ml, and protein was 32 mg per 100 ml Culture of the spinal fluid was sterile The Mantoux test was negative Chest roentgenograms showed that the heart was not enlarged and that the pulmonary vascular markings were normal

Skull roentgenograms were normal An electroencephalogram revealed a basic frequency of 2 per second in all leads and occasional slow focal bursts involving all the right-sided leads The sleep spindles were poorly formed and were absent on the right There were no seizure discharges The interpretation of the tracing was that of a grossly abnormal record with generalized slowing and right-sided focal slowing compatible with generalized and right-sided cortical dysfunction

The patient was treated with daily intramuscular injections of aqueous procaine penicillin Ten days after the patient s admission bilateral bur holes were made With the exploring needle a right parietal brain abscess was encountered and drained of 70 ml of grey-green purulent material No organisms were seen on smear and a culture was sterile Histological ex-

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From the departments of pediatrics and neurosurgery, Cook County Hospital amination of the membrane of the abscess revealed it to be a pyogenic membrane The patient made an uneventful recovery after surgery and soon became alert and active Mild hemiparesis on the left persisted after recovery

Comment

While it is possible that the cardiovascular anomalies of this patient were not related to the development of the brain abscess, we believe it much more likely that a causal relationship existed between the two conditions None of the conditions such as infection of the mastoid infection of the paranasal air sinuses, suppurative bronchopulmonary disease, bacterial endocarditis, or septicemia, which are ordinarily associated with the development of brain abscess in patients who do not have cardiac anomalies, was present in this patient The known propensity of patients with tetralogy of Fallot who have not undergone surgery to develop brain abscess has been cited

With regard to the development of brain abscess subsequent to surgery for tetralogy of Fallot, we have been able to find only two reports of such cases Clark and Clarke [2] reported seven cases of tetralogy of Fallot in which brain abscess was discovered after cardiac surgery In two of these cases, the brain abscess developed two and three years, respectively, after a successful Blalock anastomosis In two others, symptoms of brain abscess were present before cardiac surgery but were not recognized In the remaining three cases the time interval between the cardiac surgery and the development of brain abscess was so brief that the relation between the two events was not clear Sweeney and Patton [4] reported the case of an 8-year-old boy who developed a brain abscess three years after a successful Blalock anastomosis The patient was successfully treated by surgical drainage of the abscess

Several explanations have been offered to account for the predilection of patients with tetralogy of Fallot to develop brain abscess [1] It has been suggested that cerebral abscess develops in these patients subsequent to cerebral thrombosis Polycythemia is usually present in these patients, and presumably their cerebral circulation may be sluggish For this reason patients with tetralogy of Fallot are subject to cerebral thrombosis, particularly after dehydration The patient reported in this paper did not have polycythemia nor any indication of sluggish cerebral circulation at the time of onset of her brain abscess

It is more generally accepted that shunting of venous blood directly into the systemic circulation is causally related to the development of brain abscess [2] The normal passage of systemic venous blood through the pulmonary vasculature is believed to result in the removal of small septic emboli from the circulation In tetralogy of Fallot much of the systemic venous blood passes from the right ventricle into the overriding aorta and thence to the brain without first traversing the pulmonary vasculature While there is increased pulmonary blood flow in the patient who has undergone a successful Potts anastomosis, Blalock anastomosis, or pulmonary valvulotomy, the aorta continues to receive systemic venous blood directly from the right ventricle, and some venous blood continues to reach the brain without immediate previous passage through the pulmonary vasculature

Before the first case of brain abscess in a patient after operation with tetralogy of Fallot was reported, Maronde, in a discussion of cerebral abscess in congenital heart disease, pointed out that the potentialities for development of cerebral abscess would still be present after operation It is to be noted, however, that the volume per minute of systemic blood passing to the brain without immediate prior passage through the lungs is less after surgery Presumably this would decrease the patient's predilection to develop brain abscess but not completely obviate it It is to be hoped that further study may determine whether the apparent rarity of occurrence of brain abscess in cases of tetralogy of Fallot after surgery is a true indication of extremely low incidence or merely reflects the failure of publication of such cases

Summary

Seven years after the successful performance of a Potts anastomosis in a 3-year-old patient with tetralogy of Fallot, brain abscess occurred Because of the persistence, after surgery, of flow of some systemic venous blood to the brain without immediate prior passage through the lungs, the usual operative procedures performed on patients for tetralogy of Fallot do not appear to obviate completely the predilection of these patients to develop brain abscess

Addendum

Since the completion of this paper, an article has appeared by Campbell [6] reporting five cases of cerebral abscess occurring in persons with tetralogy of Fallot after a successful subclavian pulmonary anastomosis Of these five cases, four were successfully treated neurosurgically

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GASTRIC ACIDITY DETERMINATION PROCEDURES

COMPARISON OF A TUBELESS METHOD WITH AZURE A RESIN COMPOUND AND AN INTUBATION METHOD WITH HISTAMINE

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The purpose of this report is to present a comparison of findings on gastric secretion when a tubeless method with azure A resin compound (Diagnex Improved) and an intubation method with histamine stimulation are both employed in the same patient

In 1950, Segal, Miller, and Morton[1] described a method for determining the presence or absence of free hydrochloric acid in the stomach without the use of intubation This procedure consisted of the oral administration of an ion exchange resin coupled with quinine Although this technique was reliable,[2] it was not widely adopted because of the complicated laboratory facilities necessary in analyzing the quinine compound excreted in the urine

The subsequent development of a stable carboxylic resin indicator with azure A for the detection of free gastric hydrochloric acid[3] has provided a method that has proved to be simple and practical This determination involves a displacement of the azure A of the indicator resin by the hydrogen ions of the free hydrochloric acid of the stomach The presence or absence of azure A in the urine indicates the presence or absence of free hydrochloric acid in the stomach Estimation of the amount of azure A excreted is possible by gross visual means not dependent upon special equipment or complex analytical procedures The carboxylic resin compound with azure A is nontoxic, is not absorbed from the gastrointestinal tract, does not alkalinize the urine or affect the acid-base balance of the body, and does not produce constipation

Methods and Materials

The subjects of this study were 139 patients, most of whom were ambulatory and attending the gastrointestinal clinic

Tubeless Method—The determination by the tubeless method was carried out on fasting patients with an empty urinary bladder Two capsules or tablets (0 5 Gm) of caffeine and sodium benzoate were given by mouth with one-half glass of water A control urine sample was collected one hour later, and the patient was given the granular carboxylic resin indicator with azure A in one-half glass of water A second urine sample was collected two hours after the ingestion of the dye Three hours are required for performing the entire procedure The urine may remain blue for several days, but this has no clinical significance

The estimation of the quantity of azure A in the urine is performed as follows The two-hour urine and the one-hour control urine specimens are each diluted with water to approximately 300 ml If a distinct blue color is observed in the two-hour specimen, the patient has free hydrochloric acid in the stomach and the test is complete If a definite blue color is not observed, 10 ml aliquots of the diluted two-hour urine and the one-hour control urine specimens are poured into test tubes and boiled directly over an open flame or placed in a bath of boiling water for 10 minutes If, after boiling, the diluted two-hour urine specimen develops a blue color, the patient has free gastric hydrochloric acid If no color develops, the patient has achlorhydria The boiling procedure changes any colorless conjugated form of azure A that may be present in the urine to free azure A

Occasionally, after the boiling of the urine, the blue color is doubtful or questionable When this occurs, the color of the boiled two-hour urine sample as well as of the one-hour control urine sample is compared with known color standards Only two standards are necessary to determine the presence of free acid or borderline acid secretion One corresponds to the color intensity of 0 6 mg of azure A per 300 ml of solution and the other to the color intensity of 0 3 mg of azure A per 300 ml of solution A reading below 0 3 mg indicates achlorhydria, and a value between 0 3 and 0 6 mg is indicative of hypochlorhydria, while values over 0 6 mg indicate normal acid secretion If the test cannot be completed on the same day the urine samples are collected, the urine should be acidified and placed in the refrigerator For acidification, 5 to 8 drops of concentrated (35%) hydrochloric acid should be added to each 100 ml of urine

Intubation Method—The intubation procedure was done as follows Samples of gastric juice were withdrawn from the stomach of the fasting patient every 15 minutes for a total of 90 minutes Histamine (0 5 mg) was given subcutaneously after the 30-minute sample had been obtained The specimens were titrated in the usual manner, using Topfer s reagent as an indicator for free acid

Results

In each of the 139 patients, both tubeless and intubation studies were performed for comparative purposes In 106 patients (76 3%) the presence of free hydrochloric acid was demonstrated by both the tubeless and the intubation methods In five patients (3 6%), the tubeless method indicated achlorhydria and the intubation test recorded free acid In 23 patients (16 5%), the absence of free hydrochloric acid was demonstrated by both methods Five patients (3 6%), in whom achlorhydria was indicated by the azure A test, showed variable results by the intuba-

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From the Division of Gastroenterology, Department of Medicine and Department of Surgery, Beth Israel Hospital, New York tion test They appeared to have achlorhydria at one time and to be secreting small amounts of hydrochloric acid at a repeated test, some only after 60 minutes

Comment

It should be emphasized that in all patients in whom achlorhydria was indicated by the intubation method, the tubeless method likewise indicated an achlorhydria Also, in every case where the tubeless method indicated the presence of free acid, this was corroborated by intubation with histamine stimulation Some patients who appeared to have achlorhydria as indicated by the tubeless method are either intermittent or late secretors of acid or appear to have hypochlorhydria, as indicated by the intubation method

The tubeless technique has been adopted with relatively little difficulty At the time of this report approximately 700 tubeless gastric analyses have been performed at this hospital

Conclusions

The tubeless method for determining gastric acidity with the use of a carboxylic resin indicator with azure A is a simple test which may be performed on the ambulatory patient It lends itself readily to use by the practicing physician in his office When the tubeless method indicates the presence of free acid, this is conclusive The tubeless technique is useful in detecting patients with achlorhydria However, in some cases this technique will indicate achlorhydria when the standard intubation test with histamine reveals the presence of acid Since the tubeless technique is simple and has not failed to corroborate a finding of achlorhydria by the intubation method, it may be useful as a screening procedure to detect achlorhydria in mass surveys for gastric cancer

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The azure A-resin compound used in this study was supplied as Diagnex Improved by E R Squibb & Sons New York through Dr Henry Strade

Technical assistance in this study was given by Virginia Rechnitzer and Pearl Lang

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NEW VAGINAL HEMOSTATIC RETRACTOR TO REDUCE EPISIOTOMY BLOOD LOSS

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It has been shown by Odell and Seski[1] that a woman may lose, on an average approximately 253 cc of blood from an episiotomy wound in the course of a delivery and that this is the chief source of blood loss in most primiparous women A new vaginal perineal retractor (fig 1) for use in obstetrics is presented here Its primary purpose is to prevent loss of blood from the episiotomy or perineal wounds

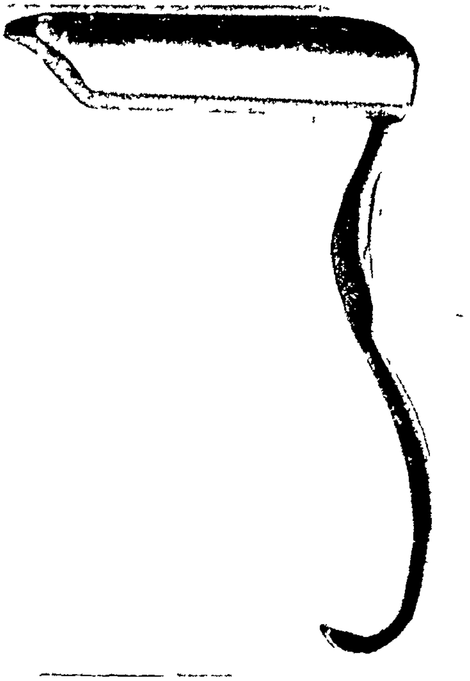

Fig 1 —New vaginal hemostatic retractor

It is a broad-bladed retractor with a concave surface, and it is weighted and shaped so as to fit snugly in the episiotomy site and give sufficient compression to the exposed vessels to stop bleeding instantaneously (fig 2) The handle is angulated away from the anus to avoid any contamination in the handling of the instrument

This retractor therefore has two main functions 1 It stops episiotomy blood loss quickly by direct pressure (It is suggested that two 4-by-4-in sponges be placed first in the bed of the episiotomy wound and then this weighted retractor placed over them) 2 It facilitates the repair of a vaginal tear after delivery by keeping the site of the episiotomy dry, therefore, there is no

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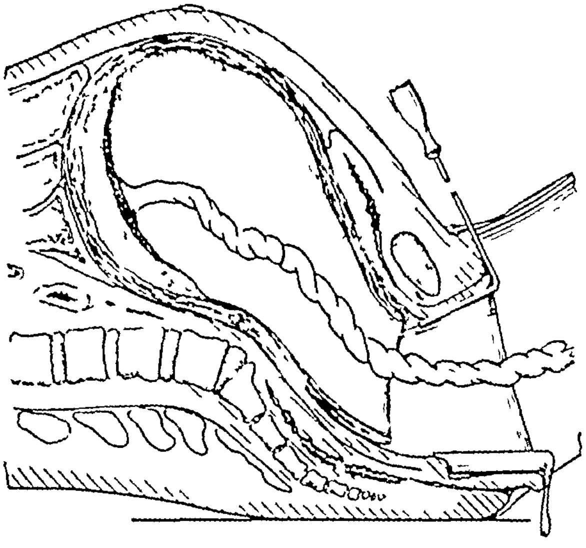

Fig 2 —Retractor in episiotomy site

further flooding of blood into the field from the episiotomy It also aids exposure by retracting the posterior vaginal wall firmly down Since it is self-retaining, the assistant is freed from holding and pulling down on this retractor and may be of help in other ways

During the use of this instrument one will readily notice the small amount of blood lost other than that from the uterus For the mother this saving of blood, which at times can be quite considerable, is always most important, especially from a morbidity and mortality standpoint This hemostatic retractor has been tested for over two years with complete satisfaction and no ill-effects

715 W Sheridan Rd (13)

The retractor described is manufactured by the Grieshaber Mfg Co 4501 W Armitage Chicago 39

References

1 Odell, L D, and Seski, A Episiotomy Blood Loss, Am J Obst & Gynec 54.51-56 (July) 1947

COUNCIL ON DRUGS

Formerly the Council on Pharmacy and Chemistry

Report to the Council

The Council has authorized publication of the following report Nonproprietary terminology is used for all drugs that are mentioned, when such terminology is not considered to be generally well known, its initial appearance is supplemented by parenthetic insertion of names known to be applied to commercial preparations H D Kautz, M D, *Secretary*

CURRENT STATUS OF THE TREATMENT OF RHEUMATOID ARTHRITIS

W Paul Holbrook, M D, Donald F Hill, M D
and
Charles A L Stephens Jr, M D, Tucson, Ariz

Rheumatoid arthritis is a disease involving many connective tissues of the body and manifesting itself as a profound systemic disturbance Inflammation of the joints and a chronic progressive crippling polyarthritis are only the most obvious manifestations of this process For many years therapeutic procedures have been based on etiological theories foci of infection, deranged carbohydrate metabolism, intestinal toxemia, endocrine imbalance, hypersensitivity to various antigens, neuropsychiatric factors, and many others Treatment directed along etiological theories has so far failed, and we must admit that, as yet, we have discovered no specific etiological agent and no single specific cure The recent increase in basic research in biochemistry, histochemistry, immunology, and biophysics gives new hope that the pathogenesis of this disease may soon be uncovered

Temporary Improvement

Many agencies produce temporary improvement in the disease Artificial fever, anesthetics, starvation, and emotional crises will occasionally be followed by definite improvement, transfusions are, in some instances, followed by a partial remission, pregnancy and nonhemolytic jaundice of sufficient degree produce remissions In rheumatoid arthritis the immediate and dramatic effects are well known of corticotropin (Acthar, Corticotropin, Depo-Acth) and the glucocorticoids, including cortisone (Cortisone, Cortogen, Cortone) acetate, hydrocortisone (Cortef, Cortril, Hycortole, Hydrocortone), prednisolone (Delta Cortef, Hydeltra, Meticortelone), and prednisone (Deltasone, Deltra, Meticorten) Approximately 90% of patients respond well and usually immediately to these substances Phenylbutazone (Butazolidin) may produce initial improvement in approximately 40% of patients with rheumatoid arthritis Remissions also occur spontaneously without identification of a remission agent Nearly all of these periods of improvement are temporary, and sooner or later the disease activity recurs We do not entirely understand the mechanism of these remissions, but the very fact that the disease in its early stages is reversible should add not only impetus to the search for the basic mechanism but confidence in ultimate success

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From the Southwestern Clinic and Research Institute

Long-term Basic Program

Inasmuch as rheumatoid arthritis is a chronic disease and usually a lifetime problem, emphasis should be placed on long-term treatment. Despite the lack of a specific cure, physicians can, with the present knowledge, prevent most of the deformities and sufficiently modify the disease to restore a majority of these patients to useful lives. Under inadequate treatment, patients with rheumatoid arthritis will continue to develop progressive crippling deformities and joint destruction. When a specific cure is discovered, it will not correct deformities or restore joints already destroyed. It is therefore essential, in the long-term management of this disease, to place every patient on a basic program directed toward the individual as well as his disease. Such a basic program should include at least the following eight items: psychological adjustment, a balance between rest and activity, diet and bowel management, correction of anemia, cautious removal of foci, relief of pain, corrective and postural exercises, and prevention and correction of deformity.

Psychological adjustment is essential for every patient. He must be told quite frankly what is known and what is not known about his disease. Failure to properly orient a patient to the long-term problems of rheumatoid arthritis is largely responsible for the fact that there are thousands who seek quick cures and quack remedies. Adjustments to family, business, and economic factors are essential. The patient must be taught to think in terms of months and years, not weeks. A very fine balance between knowledge of the facts and hope for the future needs to be achieved. No treatment of this disease will be successful over a prolonged period without this preparation.

Rest and activity should be carefully balanced on the basis of fatigability and pain. Moderate activity is helpful, provided the patient is not attempting to walk on bent and painful joints and provided the activity is followed by adequate rest.

Diet and bowel management must be prescribed accurately by the physician. This is essential, not because there are special diets that will cure arthritis but because the physician must make certain that the patient is on a highly nutritious, well-balanced diet; unless one is prescribed for him, he will most certainly, sooner or later, embark on one of the fad diets.

Correction of anemia in rheumatoid arthritis is often difficult, and simple iron preparations usually fail to help. A trial of one of the iron preparations is sometimes effective, though gastric irritation is often a problem. It is doubtful that liver, cyanocobalamin (Vitamin B_{12}), or other injections materially alter the anemia. When the disease is early and acute, three or four small fresh blood transfusions given at weekly intervals not only may help correct the anemia but often will give temporary improvement in the arthritis.

Removal of foci of infection should be undertaken not with the idea of curing the disease but only for improvement of general health. It is well to approach foci removal in rheumatoid arthritis with caution, as not infrequently an acute exacerbation may follow such a removal. Prophylactic antibiotic therapy and, in acute cases, a blood transfusion are worth doing before removal of a definite focus.

Relief of pain is usually accomplished by adequate rest, splinting or supports for the acutely affected joints, gentle warmth, but not baking, and aspirin or one of the other salicylates in adequate amounts. If opiates are required, the diagnosis should be reconsidered.

Corrective and postural exercises should be taught carefully and carried out faithfully, because for the ambulatory patient, as well as for the bed patient, they offer the best insurance of maintaining motion and improving muscle tone, thus preserving joint and muscle function.

Prevention and correction of deformities are essential in every patient with rheumatoid arthritis. The probability of flexion contraction and residual deformity should be anticipated and prevented. Much has been written on this subject, and every physician who accepts responsibility for treating even one patient with rheumatoid arthritis must be alert to this aspect of the management of this problem. Deformities can now be largely prevented and very many corrected after they occur. Knee flexion contractions in patients who now fill the wheelchairs can be prevented 100%. Prevention of deformities is simple and easily accomplished. Their correction is much more difficult and time-consuming.

Elective Measures

Once the patient is established on a full basic program, the physician is then free to choose from among the several elective procedures or measures, such as transfusions, administration of gold salts, change of climate, x-ray therapy, pregnancy, administration of gluco-corticoids, including cortisone, hydrocortisone, prednisolone, and prednisone, and administration of corticotropin (ACTH), phenylbutazone, and experimental anti-inflammatory agents.

Transfusions.—Patients with acute early rheumatoid arthritis often respond well and occasionally dramatically to repeated transfusions of ordinary fresh blood. Usually 250 to 300 cc. given weekly for three to five weeks is the method of choice. Transfusions are not advised for the management of the chronic stage of the disease.

Gold Therapy.—Despite more than 25 years of experience with gold salts in the treatment of rheumatoid arthritis, some differences of opinion still remain among students of the disease as to the value of gold therapy. We believe that gold is still the elective agent of choice in properly selected cases. In early active peripheral rheumatoid arthritis with minimal joint destruction and in the palindromic phase of rheumatoid arthritis, it offers the best chance of a very long and satisfactory remission. We regard palindromic rheumatism as an atypical rheumatoid arthritis. Gold therapy is seldom worth using in the far-advanced disease with much joint destruction and very little inflammatory reaction remaining. Although toxic effects may occur, we believe that with adequate precautions they are less frequent and less serious than those encountered in long-term therapy with gluco corticoids. Should toxic manifestations occur with gold therapy, corticotropin appears to be a specific for the skin manifestations and of value in other toxic effects. It is far easier and safer to use than dimercaprol (BAL), one of the helpful antidotes for gold toxicity If the disease is acute, we frequently use minute doses of purified corticotropin (10 units of the gel given subcutaneously) three times weekly during the first few months of gold therapy and have no difficulty discontinuing its use when the gold remission occurs Some temporary relief persists from this minute amount for 12 to 24 hours When gold is used properly in selected early cases, effective remissions are secured by this routine in a very worthwhile percentage of cases Another point to be borne in mind is that once a remission has occurred, usually after three to five months, gold therapy is not discontinued, but maintenance dosages are administered at longer intervals for years

Climate —A small percentage of patients with rheumatoid arthritis experience definite improvement with a change to a dry, warm climate The chance that climate may help does not warrant disruption of a family's economic security, as climate is no panacea for rheumatism and certainly not a cure for rheumatoid arthritis Climate is also no substitute for careful medical supervision Most patients with rheumatoid arthritis are more comfortable and more easily cared for in a suitable climate, but a minimum of three to six months is required for a trial

X-ray Therapy —Therapy with x-ray is not helpful in peripheral rheumatoid arthritis, but it is one of the valuable aids in rheumatoid spondylitis

Pregnancy —In a very high percentage of patients with rheumatoid arthritis, pregnancy results in excellent remissions However, the remission lasts only for the term of the pregnancy

Gluco-corticoids (Corticosteroids) —It is now generally agreed that the effects of the gluco-corticoids are only suppressive and do not alter the underlying disease mechanism Moreover, joint destruction may continue to advance even during excellent clinical remissions Neither intermittent courses of treatment with these substances nor continuous administration of effective suppressive doses has resulted in very encouraging results in long-term therapy In our four-year control study of 36 patients with early active rheumatoid arthritis who were treated with maximum safe suppressive doses of cortisone, 33 patients achieved a grade 1 or grade 2 remission initially After two years only two patients maintained this degree of improvement, and at the end of four years no patient remained in grade 1 or grade 2 Only two patients were receiving enough benefit to remain on therapy with the medicaments after four years In a group of 60 patients with less active disease and advanced joint changes who were selected primarily for rehabilitation, the results of minimal doses of cortisone appeared to be very worthwhile Cortisone acetate was administered orally in doses of 50 mg per day or less, with no attempt at suppressing the disease, but only in an attempt to assist rehabilitation Of these 60 patients, 26, or nearly half, were still being materially helped at the end of four years

Hydrocortisone is a more potent anti-inflammatory agent than is cortisone, but the unfavorable physiological effects are qualitatively the same In the systemic treatment of rheumatoid arthritis, its advantages over cortisone are not impressive Hydrocortisone acetate, employed as a local anti-inflammatory agent, is given to selected patients by intra-articular injection, with definite help

Prednisone and prednisolone, even more powerful anti-inflammatory agents, do not significantly disturb electrolyte and water balance as do cortisone and hydrocortisone However, in our experience, long-term therapy with these drugs is no more successful than with cortisone These substances produce marked adrenal suppression, frequently lasting for several weeks after withdrawal of the drug The risk of peptic ulcer (often silent with perforation), disturbed glucose metabolism, and the tendency to capillary bleeding are increased with administration of these substances as compared to cortisone Minimal doses of 5 to 7 5 mg daily of prednisone and prednisolone are often very helpful in rehabilitation, though even with this dosage unfavorable physiological effects may occur

When one considers the frequency of unfavorable physiological effects associated with long-term gluco-corticoid therapy, together with the high failure rate experienced, it should be clear that only after careful selection of patients and for special reasons should the gluco corticoids be used in early active rheumatoid arthritis Although our experience with juvenile rheumatoid arthritis is not extensive, it appears that children tolerate long-term gluco corticoid therapy better than do adults A number of reports by other investigators express a similar opinion

Corticotropin —The results of our four-year study in which continuous suppressive doses of corticotropin were given for the treatment of rheumatoid arthritis are quite similar to those achieved with cortisone and show the same high failure rate Corticotropin is of value in restoring adrenal function when suppression has occurred with the use of gluco-corticoids, especially when discontinuance of their use becomes necessary

Phenylbutazone —The initial response of patients with peripheral rheumatoid arthritis to phenylbutazone is not as dramatic as that to the gluco-corticoids or corticotropin, nor does as favorable a response occur in so high a percentage of patients In our experience, approximately 40% of the patients with peripheral rheumatoid arthritis achieve an initial worthwhile improvement, but a relatively small number of these reach a grade 1 or grade 2 remission However, once patients attain a worthwhile improvement without significant toxic effects, the failure rate is not so rapid as with gluco-corticoids and corticotropin therapy Adverse physiological effects occur and require constant vigilance These may include edema, hypertension, rashes, symptoms of peptic ulcer, and lowered hemoglobin levels Blood dyscrasias and hepatitis have also been reported Daily dosage in excess of 0 4 Gm is not likely to be more effective than smaller doses, and the risk increases with the larger doses In peripheral rheumatoid arthritis, phenylbutazone is best reserved for the occasional case which does not respond to other measures and which does show a favorable response within 10 days to relatively small doses Most toxic manifestations, though not all, occur during the first three months of treatment Despite the limitations of phenylbutazone in the treatment of peripheral rheumatoid arthritis, it is an extremely useful and effective agent in rheumatoid spondylitis Our studies show that 89% of patients with rheumatoid spondylitis, without peripheral involvement, responded rather dramatically to initial administration of no more than 0 2 Gm of phenylbutazone daily Forty-eight such patients who responded well initially, without toxic effects, have now been followed for more than four years Of this group, 44 are still doing remarkably well Of the four patients removed from treatment, one developed a bleeding peptic ulcer and one hematuria with recurrent urinary calculi, the drug was no longer effective in two of the patients This represents an extremely low failure rate We have withheld x-ray therapy from the patients with rheumatoid spondylitis who are doing well on this routine because the results, so far, are superior to those achieved with x-ray therapy

Other Experimental Anti-inflammatory Agents —Several new synthetic gluco-corticoids are now being investigated, and it is certainly possible to increase several fold the anti-inflammatory effects by altering the structure of the molecule The problem is to achieve this without also multiplying some of the undesirable physiological effects that occur Inasmuch as prolonged treatment is essential to the management of this disease, evaluation of these newer steroids from the long-term viewpoint is obviously impossible at this time Search for a synthetic steroid with only anti-inflammatory action is being continued, but at this writing such a compound which is entirely free of undesirable physiological side-effects has not been reported Postpartum and placental serum, primaquine phosphate, quinacrine (Atabrine) hydrochloride, chloroquine (Aralen) phosphate, nitrogen mustards, aminopterin sodium, procaine hydrochloride given intravenously, para-aminobenzoic acid, adenosine triphosphate, heparin sodium, and others previously have been reported to show favorable therapeutic effects in rheumatoid arthritis However, they have been largely abandoned for this purpose either because of excessive toxicity or failure to maintain what appeared to be early improvement In several very recent reports chloroquine has again been described as a useful drug

Comment

The present trend in treatment of rheumatoid arthritis is to emphasize a complete and carefully planned basic program, which should embrace at least the eight fundamental items discussed previously Aspirin, or one of the other salicylates, is considered to be the safest and most desirable of the drugs used for relief of pain Of the elective procedures, gold therapy administered in early active disease, when successful, often induces long and quite satisfactory remissions Gluco-corticoids, given in minimal doses, are extremely valuable in rehabilitation and in special situations in which the disease is older and much less active Corticotropin may be used in the same fashion, with minimal doses given every other day Small doses of phenylbutazone, administered under careful supervision, are effective in the control of rheumatoid spondylitis and show a low failure rate in this form of the disease

In view of the rapid failure rate, the unfavorable physiological effects, and the progression of joint destruction, all of which are associated with long term therapy, we believe that the gluco-corticoids have only a very limited place in the treatment of early active rheumatoid arthritis Furthermore, the psychological impact of the early dramatic improvement followed by gradual failure and relapse as the months go by is indeed an emotional disaster for the patient and often a cause of referral by the physician Some excellent studies have shown that the five-year results with cortisone are no better than those with aspirin However, these statistics are not quite fair, because they do not take into account the total working days during the period There are occasions when, with a full understanding between patient and physician, it is advisable or necessary to secure maximum physical activity over a given short period of time, and this can often be accomplished with the gluco-corticoids It is essential that the cost to the future of buying this time must be carefully evaluated and understood by the patient as well as the physician It is only fair to state that honest differences of opinion exist, regarding the role of gluco-corticoids in the treatment of rheumatoid arthritis The conclusions expressed in this report, while shared by many, would be thought too pessimistic by some and too optimistic by others

Finally, if the physician will spend sufficient time and effort to establish his patient on a sound basic program and only then, if necessary, select elective measures best suited to the individual problem, the results of treatment will be surprisingly rewarding

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Addison's Disease and Active Tuberculosis —*Clinical and laboratory methods for establishing* the cause of adrenal insufficiency have been found to have many limitations The most useful of these findings are adrenal calcification which is suggestive of a tuberculous etiology, and nonreactivity to tuberculin which is suggestive of idiopathic adrenal atrophy Hormonal replacement therapy for adrenal insufficiency is essential for the management of Addison s disease with or without active tuberculosis Active tuberculosis in the presence of adrenal insufficiency shows tendencies toward chronicity and relapse similar to those which characterize tuberculosis in persons without Addison s disease Antituberculous therapy should be based on the same medical and surgical principles which are applicable to individuals who do not have concomitant adrenal insufficiency In a patient with known adrenal insufficiency, the appearance of increased symptoms, increased hormonal requirements, tachycardia, fever, leukocytosis with a relative lymphopenia, and an elevated erythrocyte sedimentation rate should suggest the presence of either active tuberculosis or some similar chronic infection —J P Sanford and C B Favour, The Interrelationships Between Addison's Disease and Active Tuberculosis A Review of 125 Cases of Addison's Disease, *Annals of Internal Medicine*, July, 1956

COUNCIL ON FOODS AND NUTRITION

Report to the Council

The Council has authorized publication of the following report The Council is pleased to acknowledge the co-sponsorship of this article by The Nutrition Foundation, Inc

PHILIP L WHITE, Sc D, *Secretary*

ESTROGEN RESIDUES IN MEAT—PUBLIC HEALTH ASPECTS

George M Briggs, Ph D, Bethesda, Md

An important recent development in the food-producing industry is the administration of compounds with estrogenic activity to beef cattle and poultry to improve growth and feed efficiency The practice is especially prevalent today in the beef cattle industry, it is estimated that several million beef cattle each year, or about two-thirds of all cattle in feed lots in the United States, are being treated with estrogen-active compounds In addition, many millions of chickens and turkeys are being treated annually

The widespread use of estrogens in livestock raising is largely a result of the established benefits reported increases of as much as 20% in weight (averaging about 12%), earlier marketing, an average of about 10% saving in feed, and, often, improved carcass quality[1] Although the practice of "hormonizing" beef cattle started as recently as November, 1954, it is now firmly established and is understandably popular with feedmen It is to be expected that the practice will spread to other age groups of cattle and perhaps to other species of animals, as evidenced by the Food and Drug Administration's approval in August, 1956, of the use of diethylstilbestrol in the ration of young beef calves just starting on grain

Since estrogens can be dangerous when used improperly, the use of estrogens in animal production presents certain public health problems From the public health aspect, the following questions need to be answered 1 Do residual amounts of compounds with estrogen activity remain in meat and poultry? 2 If so, is there danger to man in the consumption of such residues? 3 What other hazards to the public exist from the practice, such as accidental contamination of feed-mill personnel and farmers, contamination of soil and water, and accidental contamination of foods intended for human use?

Estrogens Used

It is important to review briefly the present status of estrogens used in fattening animals Diethylstilbestrol and estradiol are the only compounds with estrogen activity that are approved by the FDA for use in beef cattle at the present time Diethylstilbestrol, most commonly used for this purpose, is available by chemical synthesis and is widely used as a therapeutic agent[2] The artificial estrogens have the advantage of being active when given orally and are less expensive than the natural estrogens The chemical relationship of diethylstilbestrol to the naturally occurring estrogens (estrone, estradiol, and estriol) is shown in figure 1 In general, diethylstilbestrol and the natural estrogens may be considered reasonably similar in terms of biological effects and possible toxicity[2]

A patent has been granted to the Iowa State College Research Foundation, Inc, for the use of diethylstilbestrol in the feeding of beef cattle The foundation, in turn, licenses manufacturers who distribute premixes containing 10 Gm of diethylstilbestrol per pound to approved feed manufacturers under close state and federal supervision The premix is not available to individual farmers Two pounds of a feed supplement made from the premix and containing 10 mg of diethylstilbestrol per 2 lb are used in the feed of beef cattle each day during the growing and fattening period Ear implants of diethylstilbestrol are also available for use in the beef cattle industry This latter method of administration has the advantage of requiring considerably less diethylstilbestrol to produce similar results

In poultry, diethylstilbestrol implantations have been used for 'chemical caponization' since 1947, although the practice is not as widespread relatively as in the beef cattle industry A pellet containing 12 mg of diethylstilbestrol is implanted at the base of the head about four to six weeks before the bird is marketed Another synthetic compound, dienestrol diacetate, closely related to diethylstilbestrol, was approved in 1954 for oral use in poultry[1]

Approval by the FDA has been granted recently for the implantation of pellets containing estradiol and progesterone (natural hormones) in both beef cattle and lambs The pellets are available to farmers through veterinarians Although a number of studies of diethylstilbestrol feeding of lambs and swine have been made, the results have not been particularly promising, and approval for the use of this compound in these animals has not been given by the FDA

Residues in Poultry Tissues

The earliest studies on estrogenic residues in meat were made with poultry From these studies[1a] it was concluded that tissues of birds treated with either

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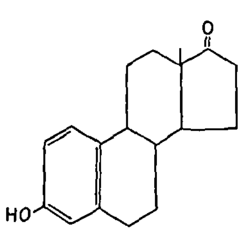
From the Laboratory of Nutrition and Endocrinology, National Institutes of Health, Public Health Service, United States Department of Health, Education and Welfare diethylstilbestrol or dienestrol diacetate contained not over 1.4 mcg. of activity per 100 Gm. of carcass, including the liver and skin. This amount may be considered negligible.

More recently, Merker and co-workers[3] of Purdue University have used improved methods of extraction and biological testing for estrogenic residues in poultry. In 1955 they reported that the free and conjugated phenolic residues obtained from chickens treated with pellets containing 12 mg. of diethylstilbestrol did not significantly differ in estrogenic activities from those of untreated chickens. Unfortunately, the Purdue workers discarded the neck and viscera in their experiments and made no comment as to whether the latter included the liver, gizzard, and heart. Since no estrogenic activity was detected, they did not determine the sensitivity of their method.

Other studies confirm earlier conclusions that only extremely small amounts of estrogenic activity are present in tissues of treated birds. Stob and associates,[4] using the entire edible carcass, found less than 1.0 mcg. per 100 Gm. of carcass four weeks after implantation of a diethylstilbestrol pellet. Trace amounts of estrogenic activity were found by Swift[5] in tissues of birds treated with diethylstilbestrol. No detectable estrogen was found in edible tissues of birds fed dienestrol diacetate by Tiger, Mitchell, and Goff,[11] who used a rat assay that is usually considered less sensitive than the assay based on the weight of the mouse uterus.



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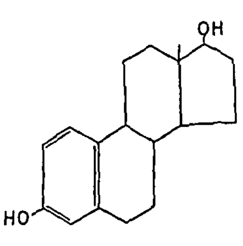

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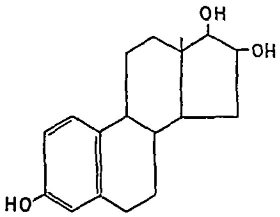
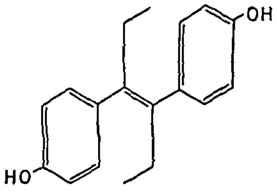


ESTRIOL



DIETHYLSTILBESTROL

Residues in Beef Cattle Tissues

Only in the past three years have studies been reported on the estrogenic activity of tissues of beef cattle treated with diethylstilbestrol. In all cases, results have shown extremely low or negligible estrogenic residues in tissues. Since these studies have not been previously reviewed, the reports are summarized briefly.

The first study of estrogen residues in tissues of beef cattle appears to be that of Stob and associates[4] in 1954. Using uterine weight changes in ovariectomized mice, these workers demonstrated the presence of approximately 1 mcg. or less of estrogenic activity per 100 Gm. of muscle and liver in beef cattle implanted with a pellet containing 120 mg. of diethylstilbestrol. A more recent report from the same laboratory[6] concluded that "no residual hormone" could be detected in the meat of steers fed 10 mg. per day of various estrogens as compared with control animals. This was true whether or not the feeding of hormones was discontinued one or seven days before slaughtering. Swift,[5] in 1954, using a less sensitive chemical assay, could not find estrogenic residues in tissues of treated steers.

Results of additional work at a number of institutions were reported in 1956. Carefully controlled experiments conducted at the Iowa Agricultural Experiment Station by Preston and co-workers[7] showed that "no detectable estrogenic residues" could be found in samples of lean meat, fat, liver, heart, and kidney tissues, or in the pooled offal organs (tripe, intestine, lungs, and spleen) of beef cattle fed 3 to 12 mg. of diethylstilbestrol per day, in some cases up to the time of slaughter. The authors used two sensitive assay techniques based on the weight response of the mouse uterus, with which as little as 0.2 mcg. of diethylstilbestrol per 100 Gm. of meat can be detected.

Turner[8] has determined the estrogenic activity of a number of tissues from beef cattle fed 10 mg. of diethylstilbestrol per day. In his test, the diethylstilbestrol was removed from the ration about 44 hours prior to slaughter. Pooled samples of tissues, taken from 20 treated animals and 10 control animals, were frozen and tested in ovariectomized mice in an assay that was sensitive to 0.2 mcg. of diethylstilbestrol per 100 Gm. of tissue. The tissues chosen for assay included those most likely to contain estrogenic activity, such as the liver, kidney, lungs, spleen, portions of the digestive tract, depot fats, and blood, as well as samples of edible red meat. The results showed no detectable residues in any of the tissues examined, with the possible exception of the kidney (0.4 mcg. per 100 Gm.) and the lungs (1.0 to 1.2 mcg. per 100 Gm.).

Considerable estrogenic activity was reported by Turner[8] to be present in the feces of cattle which were fed estrogen (stated to be as high as 1 mg. per 100 Gm.). Byerly[10] states that "feces of stilbestrol fed steers do have estrogenic activity but at present provide no cause for alarm." Obviously, this aspect of the practice of estrogen feeding deserves additional study.

Further studies with estrogen residues in tissues of cattle were made by Stob and associates in 1956.[9] Contrary to their earlier studies, residual amounts of estrogenic activity were found in the meat, kidney, liver, and intestines of cattle receiving 10 mg. of diethylstilbestrol per day up to the time of slaughter.

Gossett, Smith, and Downing[10] have measured estrogenic residues in the tissues of steers fed as much as 200 mg. of diethylstilbestrol per day, 20 times the usual level, over periods ranging from 28 to 104 days. Using a sensitive mouse assay, they reported no estrogenic residues" in the lean meat or fat when the hormone was removed from the feed 12 to 48 hours before slaughter However, "trace" amounts, up to 5 mcg per 100 Gm of tissue, were found in the liver, kidney, and tripe of cattle fed 200 mg of hormone per day up to 12 hours before slaughter When the hormone was removed 48 hours before slaughter, the amounts in these organs were less than 1 mcg per 100 Gm of fresh tissue Up to 1 mcg of estrogen activity was found per 100 Gm of liver, tripe, and kidney in steers fed 10 mg of diethylstilbestrol for 28 days and up to 12 hours before slaughter

Only negligible amounts of estrogenic activity have been found in tissues of swine [10] and sheep [11] given various levels of diethylstilbestrol Since the FDA has not released the use of diethylstilbestrol for feeding swine and sheep, this aspect of the problem is not discussed further

Public Health Aspects

In answer to the question of whether residual amounts of compounds with estrogenic activity remain in meat and poultry, it must be concluded from the facts reviewed that trace amounts of estrogen activity may sometimes be found by sensitive assay methods in meat from beef cattle and poultry treated with the usual levels of compounds having estrogenic activity Since such compounds are not destroyed by cooking, it is possible that a person eating large amounts of liver, kidney, or other organs from animals treated with estrogen could consume up to several micrograms of compounds with estrogenic activity per day However, based on the average daily consumption of meat, less than 1 mcg of compounds with estrogenic activity would be consumed

The next question that must be answered, therefore, is, Are these extremely small amounts of compounds with estrogenic activity safe for human consumption?' This question must be answered affirmatively in the light of present knowledge when one considers the following facts

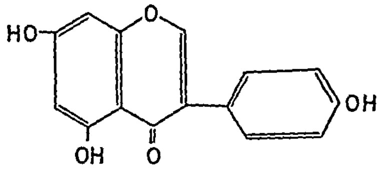
1 Much larger amounts of estrogens are synthesized by men and women each day, circulated in the blood stream,[12] and metabolized [2] or excreted in the bile or urine [13] In women, milligram quantities are synthesized daily during the later stages of pregnancy and in certain stages of the menstrual cycle

2 Animals and humans consume foods containing compounds with estrogenic activity under normal conditions [14] As stated by Luther,[15] for instance, tissues from normal (untreated) steers contain up to 0 4 mcg of compounds with estrogen activity per 100 Gm Gassner [15] also found estrogenic activity in tissues from untreated steers Milk from untreated dairy cows may contain up to 0 8 mcg of estrogens per 100 Gm of dried milk, although such values would be expected only during the latter part of the gestation period Also, normal foods of plant origin, such as lettuce, alfalfa, clover, wheat, oats, and corn, may contain appreciable amounts of compounds with low estrogenic activity [14] One such natural compound with low estrogenic activity is genistein, an isoflavone found in relatively large amounts in clover, soybean meal, and elsewhere (fig 2)

3 Since the 1930's, countless thousands of men and women have been treated with therapeutic doses of artificial and natural estrogens ranging from 1 to 10 mg per day (up to 400 mg in exceptional cases) with no permanent detrimental after-effects [15] Also, estrogens have been used in certain cosmetics resulting in the absorption of trace amounts of estrogens by thousands of women

Although it is a fact that estrogens are normally present in foods and that they are used therapeutically, it is recognized that this does not prove unequivocally that the residues in meat are safe for human consumption However, when considered with point 1, stated previously, the facts certainly are more than sufficient to justify the present conclusion that estrogen residues in meat are safe

Despite the abundance of evidence showing the safety of small tissue residues of estrogens, it has been suggested by Knight and co-workers,[15] by Hueper,[16] and by statements in the lay press that man's consumption of meat from animals treated with estrogen presents a hazard because of a known causal relationship between certain experimental animal cancers and estrogens [17] However, at the present time there is absolutely no evidence that the extremely small amounts of estrogen residues, or degradation products, that might be consumed would have any effect on cancer in either man or experimental animals Also, evidence is lacking that even much higher levels of estrogens administered to humans may be a direct cause of cancer [17] Thus, as pointed out by Hines, Berganstal, and Gassner,[15] the negligible amount of estrogen activity in meat from animals treated in the usual manner presents no cancer hazard to man as far as can be determined from present knowledge It would seem desirable to continue research in this field as a precautionary measure, however



GENISTEIN

It is true that certain health hazards to man do exist from the general practice of administering estrogens to animals Contamination of personnel in estrogen-manufacturing plants has occurred,[14a] and it would seem that, without proper care, feed-mill personnel and even farmers could become contaminated Also, mistakes in mixing animal rations can occur An example has been reported [18] in which contamination of commercial mouse diet with estrogens results in a cessation of breeding in a mouse colony and in a large loss of valuable animals Contamination of soil with estrogens may occur in a feed lot or wherever litter or manure is discarded but further research is needed on this point It is also possible that unabsorbed portions of estrogen pellets implanted under the skin of animals could be present in meat when used as food for animals or man[1] All of these hazards are admittedly possible but at present are being controlled or prevented as far as humanly possible by strict control of estrogen production, distribution of estrogen premixes to feed manufacturers, and removal of estrogen from feed before slaughter[11] Careful attention is also being given by feed manufacturers and farmers to estrogen inventories and to mixing, labeling, injecting, and feeding as outlined by the FDA and others[1b] With such care there can be no actual danger to the consumer of food products from animals treated with estrogen, thus making available a new and important tool for the production of more and better food (Briggs and Gay, and Scoville[1b])

Summary

Administration of compounds with estrogenic activity to beef cattle and poultry to improve weight gains and feed efficiency has become a widespread practice in animal husbandry in this country Meat produced from these animals contains a negligible amount of estrogen activity, supplying from 0 to 1 mcg of estrogen per day in the human diet This amount presents no hazard to man, since it is considerably less than that normally present in the body and much less than the therapeutic dose The amount of estrogenic activity is no greater than that in an ordinary diet containing milk, leafy vegetables, cereals, and meat or organs from untreated animals

The potential hazard of the practice of estrogen administration to animals lies in the possible exposure of personnel in manufacturing plants and in the results of mistakes in mixing and feeding These hazards, however, can be carefully controlled, and, with the continued vigilance of feed manufacturers, state feed control officials, and the FDA, the use of estrogens in animal production provides an important tool for improved efficiency in food production

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MEDICINE AT WORK

MEDICINE'S BIGGEST BATTLE TAMING TIME

AIM IS NOT MERELY TO PROLONG MAN S LIFE SPAN, BUT TO KEEP HIM ACTIVE

In Anaheim, Calif, not long ago Peter V Ortiz, 106, opened a bank account to start saving for his old age Bert Rhoads celebrated his 85th birthday by walking up—and down—898 steps of the Washington Monument And in Detroit, Henry Shaw, 95, though crippled and receiving only $85 a month, gave $25 to the Torch Fund, saying, 'I want the kids to have it'

These little happenings, recorded in the nation's news columns, illustrate a persistent optimism in our aging population It is an optimism that goes beyond the bright remark, the big show, the human interest pitch More in seriousness than in jest, so-called old age for an increasing number of citizens is becoming a delightful time of life when you can whistle while you wash your teeth The delight, however, is in whistling, not washing And here is where medicine faces its greatest challenge to help bring growth, motivation, and fulfillment to a larger majority of the population Longer life, in itself, is not enough

With the population of Americans over 65 increasing at twice the rate of our over-all population rise, it has been apparent to leading gerontologists that we no longer have the choice of dying young or living into ripe old age Never have the ranks of 'old timers been so crowded and unexclusive—14,500,000 of them aged 65 or older, or 8½% of the U S population (with an estimate of 25 million by 1982) Yet, today, while suddenly finding themselves surviving as fittest, a substantial number of them are spending their last years with a variety of disabilities

The magnitude of the situation is best described by Dr David B Allman, President of the American Medical Association The most important single problem facing the medical profession today is the care of the aged Medicine is largely responsible for the increasing number of people over 65, so we must solve the medical and help solve the economic problems which result'

How is medical science meeting the challenge? It is closing ranks—among specialty groups, pharmaceutical laboratories, educators, public health resources, and hospital research—to attack every phase of this problem In concepts of nutrition, exercise, mental health, recreation, and rehabilitation advances are steadily being made

In California, the Alameda-Contra Costa County Medical Association sets up classes for relatives of disabled elderly patients who thus are able to benefit by proper care in a secure home environment instead of in a less personal institution (where cost of care is 10 times as much as in the home) The State Medical Society of Pennsylvania devises a postemployment, preretirement plan for financing premiums for continued Blue Cross and Blue Shield Wisconsin state medical society members gather for sessions on medical, social, and economic problems of the aged The Philadelphia County Medical Society helps raise standards in custodial homes, joins in organizing a geriatrics division at Rush Hospital, sponsors a symposium on aging, and coins the word 'Gericrafters' for delighted oldsters who are working with the doctors in developing various skills and crafts And in New York City's day centers, a recreation program described also as a mental health program' has men and women in their 80s eagerly playing in orchestras, studying algebra, and painting city scenes

A M A Efforts

At the national level, meanwhile, medical societies are taking part in an intensified A M A campaign begun 40 years ago to urge periodic physical examinations for all Americans by their family physicians By this effort, doctors hope to find the very abnormalities which might be corrected if caught early—but which disable a person in advanced years if detected too late or not at all

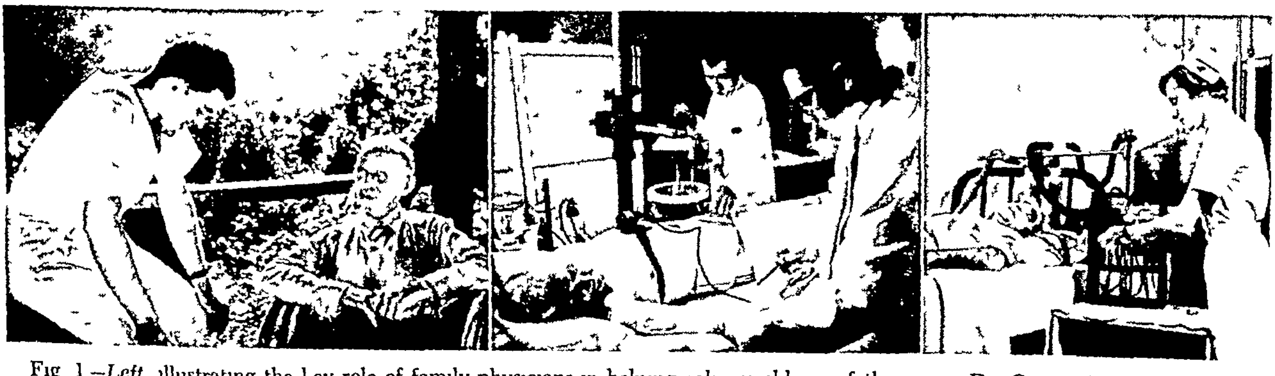

Fig 1—*Left* illustrating the key role of family physicians in helping solve problems of the aging, Dr George Bond interviews an elderly patient *Center*, doctor at right is using a dye solution procedure to determine cardiac output in study of aging *Right*, staff nurse performs a routine test to determine the relationship of aging to the basal metabolism rate (Photos from National Institutes of Health, Public Health Service)

There is hardly a phase of A M A activities which does not aim at solving some geriatric problem The Bureau of Health Education is keeping alive public interest in the topic with pamphlets, articles in *Today's Health*, and sound recordings for radio stations across the land The Council on Foods and Nutrition is studying and reporting on diet and dietary supplements for the aged The Council on Drugs is helping evaluate the many substances which pharmaceutical firms and allied research laboratories are developing for the diverse medical needs of our older population This week the Council on Rural Health is launching a cooperative effort with 4-H Clubs, agricultural extension groups and farm and grange organizations to utilize the wisdom of retired people in rural areas by enlisting their services as instructors, advisors, and consultants for future farmers and ranchers The Council on Medical Education and Hospitals is gathering data on the integration of geriatrics (as one of a number of essential subjects) in medical school curriculums The Council on Industrial Health is handling correspondence on the controversial question of when an employee reaches proper retirement age The Council on Mental Health is keeping track of appropriate developments in that field An intra-A M A committee representing five councils is exploring efforts to rehabilitate the disabled elderly THE JOURNAL, reflecting these other developments, is supplementing its regular scientific reports on aging with publication this fall of a special series of 15 original articles covering various aspects of the subject

But the A M A group most closely concerned with the over-all situation is the two-year-old Committee on Aging, headed by Dr Henry B Mulholland of Charlottesville, Va One big objective of this vigorous seven-man group is to impress upon the practicing physician the important role he can play by assuming community leadership to enrich the lives of older citizens Soon the A M A committee will publish guides for state and county medical societies, to help them organize with allied medical and lay groups in meeting specific needs of the aging in their own areas "The aging problem is primarily a community responsibility," says Dr Mulholland "There is an emphatic need for careful community planning and for coordination of various agencies and facilities

Community Coordination

Community and 'coordination'—these two words stand out wherever there is a concerted attack on problems of the aging The A M A committee makes a point of scheduling its sessions with allied health and nonmedical groups in a different part of the nation (Seattle last fall, Dallas this spring, Washington, D C, next fall) in order to understand regional implications of their continuing study In Chicago, a Commission on Senior Citizens, whose members come from many lines of endeavor, is making headway toward better health, reduced transit fares, specially designed public housing expanded recreational facilities, and a more enlightened retirement policy by business and industry in behalf of men and women over 65 years old At last report, there were 70 California communities in which different citizen groups were actively engaged in programs for older persons For ten years the University of Michigan has been gathering diverse organizations into annual conferences on aging The university's three-day session last month, developed with the help of the Michigan State Medical Society, explored "the phenomenal increase of free time' as it affects elderly persons

In Philadelphia, social workers, private physicians, the department of public assistance, and local hospitals have developed a system for delivering two meals on wheels' five days a week to thousands of aged persons in a congested industrial district One result is a reduction in the number of readmissions to Philadelphia hospitals and other institutions—readmissions once caused by the inability of many old people to obtain food or care for themselves at home New York City has a similar program in which trained "homemakers go to the homes of elderly people to help them in heavy cleaning

A most ambitious cooperative effort affecting oldsters at the community level is now under way It is the National Health Survey, launched this spring by the U S Public Health Service and the Bureau of the Census in selected areas of all 48 states Comprehensive statistics on illness, as gathered by 106 doorbell ringing interviewers, may go a long way toward solving many health problems, not simply those of today's and tomorrow's aged Overseeing the study is a national advisory committee whose members come from organized medicine (the A M A s Dr Mulholland included), dentistry, hospital administration, biostatistics, labor, insurance agencies, pharmaceutical companies, and other interested organizations

When Congress authorized the survey (the A M A was one of many supporters) it was responding to one of the most overwhelming public issues in our local, state, and national legislative halls today During this session of Congress alone, there have been 59 bills introduced which bear directly or indirectly on our aging population Most of the proposed legislation dealt with creation of a federal Bureau of Older Persons, special projects to improve community services, forms of limited free hospitalization for the infirm aged, creation of study commissions, and liberalization of public assistance laws

High Interest

Some veteran observers on Capitol Hill say that this high priority of interest in medical and other problems of the aged is "just the beginning' They predict that, on the basis of past trends, the next session of Congress in 1958 (an election year) may see the greatest volume of such legislation on record Whatever Congress does decide, it will be responding to a large and influential segment of the electorate, 25% are over 60 years old New Jersey Gov Robert B Meyner outlined the picture concisely from a political point of view last year when he told a national conference "We cannot afford to deal lightly with the problems of more than 13 million people over 65 No government, no political organization, can

Our government's vital interest is best shown by the fact that after a Federal Council on Aging was created last year out of representatives from a half-dozen agencies, the President named a member of his cabinet as council chairman—Marion Folsom, Secretary of Health, Education, and Welfare Outside of Washington, meanwhile, gerontological research is picking up both speed and scope Where are some of the results showing up?

—At facilities of dozens of pharmaceutical houses such as the 2 million dollar gerontological laboratory of the Wm S Merrell Company in Cincinnati (where yearly symposiums on aging also originate)

—At the Center for Aging Research, established within the National Institutes of Health at Bethesda, Md, to help universities and other research institutions organize a broad research program which will involve biological, sociological, and psychological mechanisms connected with aging

—At a recently opened facility in the Menorah Home and Hospital for Aged and Infirm in Brooklyn, N Y It is described as the only psychiatric clinic in the nation devoted exclusively to the aged

—At the National Institute of Neurological Diseases and Blindness in Bethesda, Md where discussions last March underscored the hope that the aging process might eventually be susceptible to some measure of control of guidance by scientific means

—In Birmingham, Ala, where a 20-year nutritional investigation led by Dr Tom Douglas Spies (holder of this year's highest A M A honor, the Distinguished Service Award) has returned nearly 900 feeble persons to work under the vigor of carefully planned diets particularly rich in vitamins

How to Live Long

Strange as it may seem, scientists see research value too, in the centenarians who have explained' their secret of long life Here are some of the responses Don't argue before breakfast Drink a pint of corn whisky with every lunch Stay away from all liquor You are never too old to get married Best thing I ever did in the world was never to get married Keep calm read the headlines and take walks in the summer People would get along a lot better if they'd stop their fool worrying

Those curious comments tend to fortify a medical conviction that sustained growth and vigor depend to a large degree, on some positive motive for living Without motive a person of 35 might be old with it, he might be young at 70 or more

Who enjoys waiting to die? Certainly not such highly motivated individuals as 70 year old heart specialist Paul Dudley White 70 year old Israel Premier David Ben-Gurion 72-year-old former President Harry S Truman, 73-year-old Spanish poet (last year's Nobel prize winner for literature) Juan Ramon Jimenez 76 year-old painter Grandma Moses, Germany's 81-year-old Konrad Adenauer, 82-year-old physician-musician-

Fig 2—Working playing, meditating, smiling These are scenes from a 24 minute documentary film on aging, A Place to Live, which is being made available on free loan to medical societies and other groups through the Wm S Merrell Company and the National Social Welfare Assembly (Photos from Marion Collins-Dynamic Films Inc)

theologian Albert Schweitzer, 89-year-old Theodore Francis Green of Rhode Island (the oldest member ever to serve in the U S Senate, he still walks over three miles to and from work each day), and many other men and women whose age cannot be measured adequately by chronology They personify the slogan of the Gerontological Society To add life to years, not just years to life

Life is being added to years outside as well as inside the laboratory, the hospital research facility, and the clinical field trial site Physicians are finding this new life for example, in vitamin research, but—together with laymen—they are also finding it in environment studies in more realistic retirement systems, and in functional recreation for elder citizens While, for example, these doctors recommend the regular family environment for old folks, they recognize that this is not always possible And so they are watching closely and hopefully the various private and public housing projects which aim to separate but not segregate' oldsters from the beneficially bustling community life of younger people

There has been a rash of such projects in the past few years mounting particularly as the result of a recent federal policy which makes it easier for church denominations labor unions, fraternal organizations, retired teacher associations, and the like" to finance rental housing for persons over 60 years of age Significant among these housing plans are those which reflect current medical thought on proper environment for the twilight years

In San Francisco, for example, the Jewish Family Service Agency has an experimental housing project for older persons which provides one hot meal a day as part of the low rent A similar project, offering the equivalent of room service at no extra cost, is operating in New York City The Milner Hotels Management Company of Detroit announced last April that it will spend 2 million dollars to convert at least 25 of its 200 hotels into what it claims will be the nation's first hotel chain of residences for the aged One such Milner hotel already has been operating in Fulton, Ky , with special emphasis on medical attention, entertainment, and food

Of course, a place to live is more than brick and mortar For the aged, it should be a roof over secure companionship—if possible, with sympathetic friends or family To point up that need the Wm S Merrell Company, in cooperation with the National Social Welfare Assembly, has produced (through Dynamic Films, Inc) a 24-minute documentary film, "A Place to Live It is being offered on free loan to medical societies and other interested groups through either Merrell or the NSWA

What About Retirement

Proper housing, nutrition, and recreation may be essential ingredients for aged populations in various stages of retirement, but the question of retirement itself is an overshadowing factor What is the right retirement age? Who decides? How should it be decided? When it is decided, what form does it take—a sudden halt, or a gradual reduction in work? More importantly, should there ever be retirement from work?

The last question is of prime concern to the medical profession because no one knows better than the family physician how essential it is for elderly patients to retain the status and worth-whileness which comes with regular employment Last spring the A M A Committee on Aging decided It is the consensus of this committee that retirement should not be based arbitrarily on chronological age Members unanimously took the stand that employment in all age brackets should be a matter of proper assignment of skills

At the same time, however, the A M A group is taking pioneer steps to help define when a workers physiological capacities let down to the point where he can better serve himself and his employer by doing less rigorous work First, the committee is trying to draft a physical examination form which might help insurance companies, industries, the armed forces, and doctors in all branches of medicine to evaluate a workers particular capabilities Secondly, together with other interested agencies, the committee is trying to devise an A Q (Aging Quotient) test based on physiological as well as psychological factors A progress report on these two efforts is on the A M A group's agenda for its meeting Sept 15 and 16 in Washington, D C

Most present-day I Q tests are designed for a youthful population, says Dr Cecil Wittson, the psychiatrist member of the committee "This does not present an accurate picture for the oldster, who may not be as speedy as younger men at a machine, but often is more reliable and has had much more experience In addition, a battery of tests that would give a quantitative indication of the mental adaptability, judgment, and reasoning ability of aging executives could, if properly used, be of enormous value to business and to aging persons, many of whom are now forced to retire prematurely solely on the basis of their chronological age Removal from positions of responsibility for signs of mental deterioration would also save companies from embarrassment and should be a real service to the aging employee as well as freeing him in some cases to turn to a less taxing occupation and thereby prolonging his life "

There is little doubt, from a medical standpoint, that when men have their occupations taken away many of them become lost—experiencing a distinct deterioration of personality, a marked depression, and a great acceleration in the aging process Lack of work, even when there is a pension, almost always presents a severe problem in economics, as well, to the elderly In Louisiana, for example, 72% of all persons over 65 are on some form of relief from local welfare depart ments (The figure is only 8% in New York, largely because that state has a law holding children responsible for the support of their parents and grandparents)

At a time when his medical needs normally are the greatest, the earning power of the oldster is at its lowest Multiplied by the millions, it is this factor—more than any other—which challenges the entire community in every corner of our nation

Meeting the Challenge

In many places the challenge is being met forcefully and with success President John Erik Jonsson of Texas Instruments, Inc , has adopted a policy to never hire anybody you don t expect to keep the rest of his working life ' Some companies have established an increasing period of vacation beginning at the age of 60 with one month, and ending up at 64 with a six months vacation—so that when an employee actually retires he has had the opportunity to interest himself in another phase of life Other firms are devising a system where by decision for retirement is a joint responsibility of the worker's physician, the company personnel officer, the employee's job supervisor, and a disinterested fourth party One telephone company in the Midwest puts out the "help wanted sign for women only between the ages of 65 and 85 By specific rule, the entire faculty of the University of California s Hastings College of Law for the past decade has been made up of seasoned instructors over 65 years old (the current average age is 73)

The New York Labor Department, in a bulletin to businesses throughout the state, recently exploded a series of myths in order to encourage the hiring of elderly workers—pointing out that as a rule they are not less productive, not more absent, not less skilled, and not necessarily too costly on the payroll, compared to younger employees Both the National Association of Manufacturers and the United States Chamber of Commerce have shown that 'the value of the productive capacity of the oldster has been grossly underestimated '

Nowhere has this concept had more precise application than in Los Angeles, where an aggressive woman of 60 not long ago discovered that senior citizens of the area owned 100 million dollars worth of local commercial investments Since then, she has persuaded many of these security holders to protest to businesses which have discriminated against hiring older workers

Perhaps as one national magazine describes the movement in Los Angeles, 'this may be the seed of a nationwide revolt of oldsters ' If it is, then such a revolt may be long overdue 'Major tension areas have developed between the generations,' says Sen Thomas C Desmond chairman of the New York State Joint Legislative Committee on Problems of the Aging Oldsters resent being relegated to the role of baby sitters or being tolerated only as long as they serve as unpaid servants The oldster who sees no tangible evidence of direct help to him grows impatient And why not? We tell him that help will come in time—but time is what he has the least of '

Senator Desmond s contention is that no one service, no one approach, no one type of institution will meet the needs of all elderly people at any one time or over the years Because this denotes community effort as the key to solution of a gigantic national problem, family physicians everywhere now have the unique opportunity of creating the proper local climates of understanding in which there can be a new phase of growth and development for aging citizens Success will come when more people are whistling while they wash their teeth

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Regression in Patient During Illness —In every illness there is evidence of a regression to earlier phases of development both physiologic and psychologic That is to say, the sick person becomes more or less childlike, and is dependent, passive and demanding in his attitudes These regressive reactions are usually reversible when one of the major factors in the particular illness has been dealt with satisfactorily Thus, when the systemic reaction to infection or trauma begins to subside, the helplessness, clinging dependence and many other responses that have been characteristic of the particular patient's personality make-up tend to disappear Usually, physicians intuitively recognize the regression which an illness brings about, and in varying degrees they treat their patients like the children they seem to have become The individual physician's capacity to tolerate and gratify these demands of the patient has been called his art of medicine Doctors who do not have the capacity unconsciously to identify themselves with each of their patients must deliberately make themselves aware of their own and their patients psychic processes Such an awareness will make the doctor cognizant of his patient s hidden anxieties, hostilities and secondary gains Even when the illness is severe and incapacitating, the doctor will be tactful and considerate enough to facilitate the patient s adjustment to the needed treatment, and will increase his tolerance for the ups and downs of the illness The alleviation of the doctor s anxieties and the control of his aggressive and other tendencies will be reflected in the smoother clinical course in all illnesses and with all kinds of treatment Thus, the traumatic effects of surgical procedures and of hospitalization can be decreased to a significant degree —H T Carmichael, M D , A Psychiatrist Looks at Problems Common to All Medical Practice, *Journal of the Iowa State Medical Society*, August, 1956

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PRINCIPLES OF MEDICAL ETHICS—1957

In June, at its Annual Meeting in New York, the House of Delegates adopted a revision of the Principles of Medical Ethics. In contrast with previous editions of the Principles which contained from 43 to 48 sections, the present edition consists of a preamble and 10 sections. According to the Council on Constitution and Bylaws, which drafted the new Principles, "the present version eliminates superfluous wording and matters of medical etiquette but retains all matters of ethics found in [the 1955 edition of the] Principles." These Principles are reproduced on page 1484 of this issue of THE JOURNAL.

The Judicial Council is preparing a compilation of its interpretations of the Principles of Medical Ethics issued since the turn of the century, as well as an abstract of the compilations for more general distribution. It is hoped that these documents will serve to preserve, under the 1957 Principles, the traditional ethical concepts that have been observed these many years.

The combination of a concise document stating broad, basic principles and an abstract of accepted interpretations of the Principles should eliminate the need for frequent revisions of the Principles or the necessity for adopting a code of conduct comparable to a criminal code at law.

The 1957 Principles have been thoroughly discussed at meetings of the Council on Constitution and Bylaws and before appropriate reference committees of the House. They were widely published before their adoption. They represent the combined efforts of many distinguished leaders in the field of medical ethics. Their format is a break with the immediate, verbose past and an attempt to state concisely broad guides to ethical conduct which, through interpretation, may be applied to specific factual situations.

Despite the efforts devoted to drafting this edition, and despite the full discussion of its intent and purpose, neither its length nor its language will insure observance of the principles it enunciates. At best the written principle of ethics is but the suggestion of the inexpressible. It is the effort to express truths which are known in conscience. As one's conscience is developed one knows these truths and as one follows a right conscience he acts ethically.

It is not, then, the printed document which makes a doctor ethical, rather it is his observance of the dictates of his own enlightened conscience. The document which attempts to express ethical principles is only an aid, a symbol which may help keep ideals uppermost in mind and practice. The 1957 edition of the Principles, because it is concise, because it is limited to basic, ethical concepts, and because it is capable of being displayed prominently and with pride, possesses merit as a document which can aid the doctor maintain the tradition of his profession: to do good, selflessly, as he strives to improve the health of mankind.

LENGTHENING MAN'S SPAN OF VIGOR

One by one, man through the ages has kicked over the hurdles which shorten his life: disease, malnutrition, the elements in their severity, preying beasts, and preying men. Now that humans are essentially at peace with their fellows and with nature in many areas of the globe, more people are reaching 'old age' than at any time in history. But it is not always ripe old age. Modern civilization has put up other hurdles which tend to cripple these new survivors in their longer life: tensions which hit the heart and brain, employment deprivations which hit the pocketbook, sociological problems which hit future outlook.

All of this pressure on a burgeoning population of oldsters has brought about what many authorities describe as a national problem—how to create a proper climate for senior citizens to grow with their age rather than stagnate in a tremendously expensive wait for death. Since medical science is largely responsible for this increased longevity, physicians everywhere must bear much of the burden of also prolonging man's span of activity. It is a mammoth task, calling for action and planning in many fields besides medicine. But it is a rewarding one also—for all mankind stands to benefit from the wisdom and experience of these senior citizens. They represent a relatively still untapped source of manpower and brainpower that can be turned from an economic liability into a total asset. In the process, longevity can be extended even more fully and optimistically.

The problem in its complexity, the challenge in its urgency, and the future in its opportunity are told on page 1477 of this issue in another Medicine at Work article. Dominant in that article is the leading role physicians are playing in cooperation with lay organizations and allied health groups.

THE PRESIDENT'S PAGE

A MONTHLY MESSAGE

Doctors and the American Medical Association frequently are berated for being "against" everything and not "for" anything This is a hackneyed criticism that is tiresome as well as mistaken While I generally subscribe to the philosophy that it is better to be positive than negative, I always shall oppose the wrong, the evil, and the foolish

For example, I am against third-party intervention into medical service because it is detrimental to the doctor-patient relationship and to good medical care From experience I know that illness is a personal problem to be solved by the patient and the doctor of his choice In this two-party relationship there is no room for an uninterested, unsympathetic outsider Neither the patient nor the doctor wants a third party in this personal relationship

If my opposition to third-party intervention into medical care is labeled a defense of the medical status quo, I make no apologies In medicine, as in anything else, there are certain basic tenets that time cannot change and that third parties should not alter or invade One is the doctor-patient relationship, voluntarily established by the patient who chooses a physician and by the doctor who assumes responsibility for the care of the patient

In opposing third-party intervention in medical service, we do so in favor of free choice of physician, free selection of patient, the unqualified responsibility of physician to patient, the unrestricted exercise of professional judgment, and the direct reward for individual initiative

Through the years these freedoms have proved best for the patient, and now is the time for the medical profession to support them fearlessly for the benefit of the present and future generations

You undoubtedly have heard critics call the principle of free choice 'a vague and inconsequential matter I hope you take the opportunity to set them straight Free choice is not nebulous, it is not irrelevant Free choice is an individual liberty that enables the patient to direct the course of his own life in the pursuit of good health, long years, and personal happiness And it is a right that helps to mold an individual s spirit of independence and self-reliance

Doctor-patient relationship is not some obscure medical bond It is an affirmed and legally binding mutual agreement It is a real and personal relation in which two parties are interested primarily in one goal the prevention or the defeat of illness and the patient s return to good health Is there really any place for a third party interested only incidentally in this goal?

Where the doctor-patient relationship is free of outside intervention, I believe the quality of medical service is unequaled Medicine's record of achievement in the United States as contrasted with the experiences of third-party controlled medicine in other countries proves this contention beyond any doubt

Unhampered by third parties, the physician is free to provide the best service to his patient He is free scientifically to apply his skills fully, without limitation or regulation, he is free personally to use his art of medicine, without interference or standardization And his efforts are not hamstrung by extraneous rules and triplicate forms

In this kind of relationship where both patient and physician have the maximum freedom, the matter of fees for professional service is strictly a two-party affair Invariably, the doctor knows better than any third party what the patient should pay or what he can pay Any standardization of fees by a third party certainly restricts the freedom of both buyer and seller of medical service If there is to be the greatest possible physician incentive and medical competition, there can be no standardization of fees by outsiders And if the patient is to be completely free to choose the best in the medical market, he too must not run up against restrictions arbitrarily set by third parties

I also believe that the various freedoms of patients and physicians are tied together Take away one or more and others inevitably are lost

Because of recent piecemeal infringement of medicine s freedoms and patients liberties by third parties, I am deeply concerned about the future quality of medical care We have had the best kind of medical service in the past without third-party intervention

For this reason I intend to resist and fight further intervention by third parties in the field of medical care and practice In the coming year I seek your support *in this effort*

David B Allman, M D, Atlantic City, N J

ORGANIZATION SECTION

*Following are the revised Principles of Medical Ethics as adopted by the House of Delegates at the 1957 Annual Meeting.—*Ed.

PRINCIPLES OF MEDICAL ETHICS

Preamble.—These principles are intended to aid physicians individually and collectively in maintaining a high level of ethical conduct. They are not laws but standards by which a physician may determine the propriety of his conduct in his relationship with patients, with colleagues, with members of allied professions, and with the public.

Section 1.—The principal objective of the medical profession is to render service to humanity with full respect for the dignity of man. Physicians should merit the confidence of patients entrusted to their care, rendering to each a full measure of service and devotion.

Section 2.—Physicians should strive continually to improve medical knowledge and skill, and should make available to their patients and colleagues the benefits of their professional attainments.

Section 3.—A physician should practice a method of healing founded on a scientific basis, and he should not voluntarily associate professionally with anyone who violates this principle.

Section 4.—The medical profession should safeguard the public and itself against physicians deficient in moral character or professional competence. Physicians should observe all laws, uphold the dignity and honor of the profession and accept its self-imposed disciplines. They should expose, without hesitation, illegal or unethical conduct of fellow members of the profession.

Section 5.—A physician may choose whom he will serve. In an emergency, however, he should render service to the best of his ability. Having undertaken the care of a patient, he may not neglect him, and unless he has been discharged he may discontinue his services only after giving adequate notice. He should not solicit patients.

Section 6.—A physician should not dispose of his services under terms or conditions which tend to interfere with or impair the free and complete exercise of his medical judgment and skill or tend to cause a deterioration of the quality of medical care.

Section 7.—In the practice of medicine a physician should limit the source of his professional income to medical services actually rendered by him, or under his supervision, to his patients. His fee should be commensurate with the services rendered and the patient's ability to pay. He should neither pay nor receive a commission for referral of patients. Drugs, remedies or appliances may be dispensed or supplied by the physician provided it is in the best interests of the patient.

Section 8.—A physician should seek consultation upon request, in doubtful or difficult cases, or whenever it appears that the quality of medical service may be enhanced thereby.

Section 9.—A physician may not reveal the confidences entrusted to him in the course of medical attendance, or the deficiencies he may observe in the character of patients, unless he is required to do so by law or unless it becomes necessary in order to protect the welfare of the individual or of the community.

Section 10.—The honored ideals of the medical profession imply that the responsibilities of the physician extend not only to the individual, but also to society where these responsibilities deserve his interest and participation in activities which have the purpose of improving both the health and the well-being of the individual and the community.

AMEF PROGRESS REPORT

In a progress report to the 19th annual meeting of the board of directors of the American Medical Education Foundation June 7 at the Waldorf-Astoria Hotel in New York City, executive secretary John W. Hedback said that foundation fund-raising from the medical profession passed the 6 million dollar mark early this year. As of May 1, 1957, contributions were up 15% over a year ago. During the rest of the year, said Hedback, his staff will help in the campaigns of those states where contributions and resources are expected to provide a major portion of AMEF income.

The A. M. A. Woman's Auxiliary's 1956-1957 campaign for the foundation was concluded at their June meeting in New York, where it was announced that $113,437.80 was raised, 26% more than the previous year. New campaign materials, four mailings to state and county Auxiliary officers, and a direct mail appeal to the entire Auxiliary membership was given major credit for the enthusiasm which produced this result.

Of marked importance among meetings arranged by the foundation in the past year was a State Chairman's Conference in Chicago, which highlighted an exchange of program procedures used in various states. It is planned to expand this sort of annual conference to include metropolitan area chairmen who can stimulate greater activity at the local level.

At a meeting of AMEF officials and alumni fund directors of several universities last March, Hedback reported, plans were made for a more cooperative effort to help medical schools. One direct result of the session was a joint campaign of Georgetown University and the foundation. A new pamphlet was designed for direct mailing to Georgetown graduates. Hope was expressed at the New York meeting that other schools would take part with AMEF in similar cooperative efforts.

Plans for the coming year include an intensive fall campaign, the showing of a newly designed AMEF exhibit at state meetings where it is requested, and a continued search for sources of large gifts to the foundation

Elected to the board of directors at last month's annual meeting was Leland S McKittrick of Brookline, Mass , the new Chairman of the A M A Council on Medical Education and Hospitals He succeeds Herman G Weiskotten, who is retiring Other members of this year's AMEF Board are Louis H Bauer, president, George F Lull, vice-president, Edward L Turner, secretary-treasurer, D G Anderson, F J L Blasingame, J W Cline, Gunnar Gundersen, E S Hamilton, Victor Johnson, and J J Moore

FRANK BILLINGS LECTURESHIP, AMERICAN MEDICAL ASSOCIATION

The Frank Billings Lectureship offered at annual meetings of the American Medical Association has been very popular over the years and has become well known to countless physicians throughout the country Dr Walter L Bierring recently prepared a historical account of the lectureship, and it is herewith reproduced —Ed

At the annual session of the American Medical Association in Washington, D C, May 16-20, 1927, the Section on Practice of Medicine first considered the establishment of a special lectureship to be presented before the section each year as a part of the regular program The matter was proposed by Dr Henry A Christian of Boston, and received enthusiastic support from the Chairman, Dr Lewellys F Barker of Baltimore and the members of the Section The Chairman was directed to appoint five trustees to promote a special lectureship fund and institute the annual lecture as soon as possible The following persons were named Dr Lewellys F Barker, Section Chairman, 1927, Dr Rollin T Woodyatt, Section Chairman, 1926, and Dr Eugene F Kilgore, Section Chairman, 1925 These three were the present and immediate past-chairmen and constituted the Executive Committee of the Section, and therefore one trustee was changed each year In addition, two trustees at large were named Dr Warfield T Longcope and Dr Walter L Bierring, who served continuously The trustees were directed to establish a special lectureship fund by voluntary subscriptions, which was quite successful, and about $4,000 was collected by September, 1929, when the financial depression made further collections rather difficult However, small amounts were added from time to time, and in 1940 a special contribution was received from Dr Emanual Libman of New York for $500

At the session of the American Medical Association in 1928 in Minneapolis, the Section voted to name the annual lecture in honor of Dr Frank Billings of Chicago in recognition of his many scientific contributions to the Section, and general eminence in American medicine

The name of the Section on Practice of Medicine was changed in 1946 to that of Internal Medicine

In 1941 the Frank Billings Lectureship fund was transferred to the Treasurer of the American Medical Association, 535 N Dearborn St, Chicago It had previously been supervised by Dr Walter L Bierring, as treasurer

In order to have a trustee at large in Chicago, Dr N C Gilbert was named by the Section, and upon his death in 1953 Dr Ernest E Irons of Chicago was selected as his successor When Dr Warfield T Longcope died the same year, Dr Walter L Palmer of Chicago was appointed trustee at large

The first Frank Billings Lecture was presented before the Section in 1930 at the A M A session in Detroit, and has been included in the Section program at each succeeding year, with the exception of the years 1943 and 1945, when the scientific program was omitted from the annual session of the American Medical Association because of World War II

The customary honorarium for the lecture has been $100, to which occasional additions have been made as determined by the trustees

The following Frank Billings Lectures have been presented

1930 Joseph L Miller, Chicago—Detroit session
Title—Present Status of Non-specific Therapy
The Journal Aug 16, 1930

1931 Henry A Christian, Boston—Philadelphia session
Title—Mechanism of Edema in Relation to Clinical Classification of Bright's Disease
The Journal, Aug 1, 1931

1932 William S Thayer, Baltimore—New Orleans session
Title—Thoughts on Medical Education in the United States
The Journal, July 2, 1932

1933 Lewis A Conner, New York—Milwaukee session
Title—Development of Knowledge Concerning Role of Syphilis in Cardiovascular Disease
The Journal, Feb 24, 1934

1934 James B Herrick, Chicago—Cleveland session
Title—Practitioner of Future
The Journal, Sept 22, 1934

1935 Emanual Libman, New York—Atlantic City session
Title—Some Aspects of Endocarditis, with Special Reference to the Subacute Variety
Not published

1936 George Blumer New Haven, Conn —Kansas City session
Title—Pericarditis Epistenocardica
The Journal, July 18, 1936

1937 Joseph A Capps, Chicago—Atlantic City session
Title—Air Embolism Versus Pleural Reflex as Cause of Pleural Shock
The Journal, Sept 11, 1937

1938 Walter L Bierring Des Moines, Iowa—San Francisco session
Title—Focal Infection Quarter Century Survey
The Journal, Sept 11, 1938

1939 George Dock Pasadena, Calif —St Louis session
Title—Historical Notes on Coronary Occlusion from Heberden to Osler
The Journal, Aug 12, 1939

1940 E P Joslin, Boston—New York session
Title—University of Diabetes Survey of Diabetic Morbidity in Arizona
The Journal, Dec 14, 1940

1941 Warfield T Longcope, Baltimore—Cleveland session
Title—Sarcoidosis or Besnier-Boeck-Schaumann Disease
THE JOURNAL, Oct 18 1941

1942 Joseph H Pratt, Boston—Atlantic City session
Title—Pancreatic Disease
THE JOURNAL Sept 19, 1942

1943 No scientific meeting

1944 Louis Hamman Baltimore—Chicago session
Title—Mediastinal Emphyzema
THE JOURNAL, May 5 1945

1945 No scientific session

1946 Rollin T Woodyatt, Chicago—San Francisco session
Title—Diagnostic Problems of Diabetes

1947 E E Irons Chicago—Atlantic City session
Title—Frank Billings, Physician Teacher, Medical Statesman and Citizen
Bulletin of the Society of Medical History of Chicago
October, 1948

1948 James S McLester Birmingham Ala—Chicago session
Title—Protein Comes into Its Own
THE JOURNAL April 2 1949

1949 Reginald Fitz, Boston—Boston session
Title—Osler and the American Medical Association

1950 Russell M Wilder Rochester Minn—San Francisco session
Title—Reflections on the Causation of Diabetis Mellitus
THE JOURNAL, Dec 9, 1950

1951 N C Gilbert Chicago—Atlantic City session
Title—History of Treatment of Coronary Heart Disease
THE JOURNAL, April 19, 1952

1952 George H Coleman Chicago—Chicago session
Title—Present Status of Concept of Focal Infection
THE JOURNAL Jan 24 1953

1953 Paul D White Boston—New York City session
Title—Principles and Practice of Prognosis with Particular Reference to Heart Disease
THE JOURNAL Sept 12 1953

1954 P S Hench Rochester Minn—San Francisco session
Title—The Cortisones and Corticotropins in General Medicine

1955 David P Barr New York—Atlantic City session
Title—The Price We Pay
THE JOURNAL Dec 10, 1955

1956 William S Middleton Washington, D C—Chicago session
Title—The Natural History of Disease
THE JOURNAL Oct 6, 1956

1957 C Sidney Burwell Boston—New York City session
Title—Rheumatic Heart Disease in Pregnancy

REGISTRATION AT THE ANNUAL MEETING NEW YORK, JUNE 3-7, 1957

Alabama	74	Nebraska	32
Alaska	4	Nevada	7
Arizona	38	New Hampshire	29
Arkansas	32	New Jersey	2 [illegible]
California	472	New Mexico	18
Canal Zone	5	New York City	3 614
Colorado	63	New York	4 48[illegible]
Connecticut	658	North Carolina	137
Delaware	79	North Dakota	30
District of Columbia	227	Ohio	557
Florida	243	Oklahoma	44
Georgia	112	Oregon	31
Hawaii	11	Pennsylvania	1 710
Idaho	9	Puerto Rico	[illegible]
Illinois	583	Rhode Island	[illegible]
Indiana	175	South Carolina	[illegible]
Iowa	103	South Dakota	[illegible]
Kansas	4[illegible]	Tennessee	103
Kentucky	85	Texas	[illegible]
Louisiana	100	Utah	23
Maine	30	Vermont	31
Maryland	337	Washington	8
Massachusetts	487	Virginia	19
Michigan	317	West Virginia	8
Minnesota	[illegible]	Wisconsin	11
Mississippi	33	Wyoming	[illegible]
Missouri	123		
Montana	11	Total	18 91[illegible]

OTHER COUNTRIES

Africa	10	Iraq	[illegible]
Arabia	1	Ireland	1
Argentina	27	Israel	
Australia	6	Italy	[illegible]
Austria	6	Jamaica	1
Bahamas	1	Japan	8
Belgium Congo	1	Korea	[illegible]
Belgium	5	Lebanon	4
Bermuda	1	Malta	1
Bolivia	2	Mexico	15
Brazil	27	Netherlands	7
Canada	142	New Zealand	[illegible]
Chile	10	Nicaragua	3
China	9	Norway	4
Colombia	7	Pakistan	[illegible]
Costa Rica	3	Peru	4
Cuba	30	Philippine Islands	16
Czechoslovakia	1	Poland	4
Denmark	6	Rhodesia	1
Dominican Republic	1	Scotland	3
Ecuador	3	Spain	8
Egypt	1	Sweden	[illegible]
El Salvador	1	Switzerland	4
England	[illegible]6	Thailand	[illegible]
Finland	3	Tunisia	[illegible]
Formosa	2	Turkey	4
France	14	Uruguay	6
Germany	24	Venezuela	6
Greece	6	Virgin Islands	1
Guatemala	1	Yugoslavia	[illegible]
Haiti	2		
Honduras	2	TOTAL (other countries)	[illegible]
India	16		*18 919*
Indonesia	3		
Iran	10	Grand total	19 40[illegible]

REGISTRATION BY SECTION

Anesthesiology	62[illegible]
Dermatology & Syphilology	[illegible]
Diseases of the Chest	4[illegible]
Experimental Medicine & Therapeutics	126
Gastroenterology & Proctology	30[illegible]
General Practice	3,[illegible]
Internal Medicine	3 [illegible]
Laryngology Otology & Rhinology	441
Military Medicine	16
Nervous & Mental Diseases	61[illegible]
Obstetrics & Gynecology	1 0[illegible]
Ophthalmology	823
Orthopedic Surgery	[illegible]
Pathology & Physiology	43
Pediatrics	8
Physical Medicine & Rehabilitation	1[illegible]
Preventive & Industrial Medicine & Public Health	341
Radiology	[illegible]
Surgery General & Abdominal	2 0[illegible]
Urology	3[illegible]
Session on Allergy	1[illegible]
Session on Legal Medicine	[illegible]
Session on Medical Communication	14
More than one section	1 [illegible]
No section checked	1,[illegible]
Total	19 [illegible]

MEDICAL NEWS

CALIFORNIA

Dr Newell Honored —Radiologists and other colleagues gathered in San Francisco on June 17 at a testimonial dinner honoring Dr Robert Reid Newell on his retirement as professor of medicine and biophysics, Stanford University School of Medicine A Festschrift issue of the *Stanford Medical Bulletin,* containing contributed papers of general interest in the fields of radiology, radiobiology, and biophysics, is being prepared in his honor for release in August Dr Newell has served on the International Committee on Radiation Protection, Committee on Radiologic Units, Standards and Protection of the American College of Radiology He is a past-president (1951) and fellow of the American College of Radiology

Brain Oxygen Research Grant —The College of Medical Evangelists, Los Angeles, has received an $18,499 grant from the National Institutes of Health According to Dr Findlay E Russel director of the college's Laboratory of Neurological Research at Los Angeles County Hospital, the grant is for a study "designed to determine the changes produced in discrimination by the various senses, shifts in emotional response to certain stimuli, and variations in patterns of timing when the brain is subjected to an oxygen lack" The team of investigators, including Dr Cyril B Courville, Dr Ralph Gunter, and Dr Russell, will also observe differences in behavior produced by poisoning from various gases which cause a deficiency of oxygen in the brain

Cardiovascular Research Institute —Construction will begin this month on quarters for the new Cardiovascular Research Institute at the University of California Medical Center, San Francisco The institute will occupy the presently unfinished 13th floor of the Herbert C Moffitt Hospital The institute's laboratories and research beds will provide the environment for an extensive program of basic and applied research on diseases involving the heart and circulatory system Members of many School of Medicine departments will cooperate in investigating a broad range of cardiovascular problems The floor will be completed at a cost of about $460,000 provided by the California Legislature and the United States Department of Health, Education, and Welfare Construction is scheduled to be completed by April 30, 1958

GEORGIA

Appoint Chairman of Department of Medicine —Dr Thomas Findley, who has been professor of medicine and chairman of cardiovascular research for the Georgia Heart Association at the University of Georgia School of Medicine, Augusta, since May, 1954, has been named chairman of the department of medicine, effective July 1, when Dr Virgil P Sydenstricker retired Dr Sydenstricker has been professor of medicine and chairman of the department since 1922 Dr Findley was made head of the section of Internal Medicine at the Ochsner Clinic in New Orleans in 1942 He also served on the faculty of Tulane University School of Medicine, being appointed professor of clinical medicine, which position he held until coming to the Medical College of Georgia Dr Findley was secretary-treasurer and subsequently president of the Southern Society for Clinical Research, president of the New Orleans Academy of Internal Medicine in 1947, and in 1950 was a member of the Board of Governors of the American College of Physicians Since 1952, he has been secretary-treasurer of the American Board of Internal Medicine

ILLINOIS

Chicago

Society News —At a recent meeting of the German Medical Society of Chicago the following officers were elected for the year 1957-1958 president, Dr Ferdinand Seidler, vice-president, Dr Joseph R Mueller, secretary, Dr Eugene F Lutterbeck, and treasurer, Dr Edward V Stalzer

Dr Vail Honored —Dr Derrick T Vail, chairman, department of ophthalmology, Northwestern University Medical School, has been honored at Oxford, England, for his contributions in ophthalmology The Oxford Ophthalmological Congress was founded in 1909 by Robert Doyne, a British ophthalmologist Each year an international council invites an eye surgeon to deliver the Doyne Memorial Lecture and to receive the Doyne Medal Dr Vail is the second American in the history of the congress to be so honored Subject of his address to the group was the zonule membrane Dr Vail has received the Legion of Merit, the Bronze Star Medal, the Order of the Crown of Belgium, and the Medal of Gratitude from France He is an honorary member of the Ophthalmological Society of the United Kingdom and honorary fellow of the Royal College of Surgeons

MAINE

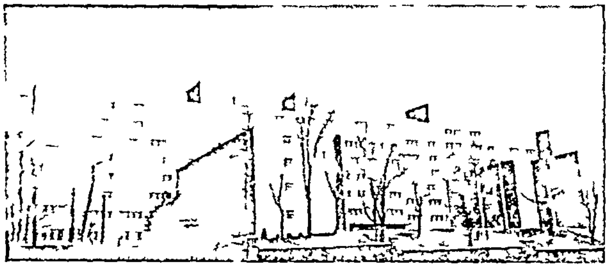
Society News —At the recent meeting of the Maine Radiological Society the following officers were elected president, Dr John T Konecki, Lewiston, vice-president, Dr Irving L Selvage, Portland, and secretary-treasurer, Dr Francis J O Connor, Augusta

Cancer Research Fellowships —The Maine Cancer Society has recently awarded 12 special fellowships for an intensive course at the New York Memorial Center for Cancer Research to Maine physicians and administrators of hospitals who are also registered nurses The physicians were Dr Armand Albert, of Van Buren, president of the Maine Medical Association, Dr Richard C Wadsworth, of Bangor, pathologist at Eastern Maine General Hospital, and Dr John F Reynolds, of Thayer Hospital, Waterville, both of whom are members of the Maine Cancer Society board of directors, and Dr Charles D McEvoy Jr, of Eastern Maine General Hospital, Boothbay Harbor

MASSACHUSETTS

Personal—Albert Baird Hastings, Ph D, Hamilton Kuhn Professor of Biological Chemistry, Harvard Medical School, Boston, has been named visiting professor of biochemistry at the Australian National University, Canberra Professor Hastings began lecturing and conducting seminars at the Australian university for a three-month period starting July 1 He will also lecture in Melbourne and Sidney

Open Worcester Treatment Center—Recently the William A Bryan Treatment Center of Worcester State Hospital opened for the treatment of psychiatric cases It has a capacity of 860 patients and includes a day hospital, night hospital, and outpatient department Built at a cost of 7 million dollars, the seven-story center features a large auditorium, a 400-bed psychiatric area, complete operating room, obstetrical service, nursery, dental suites, x-ray and physiotherapy facilities, and interview rooms The upper four stories are devoted to medical and surgical service Of the 32 psychiatric wards, 22 are open to allow patients to go outdoors or go to the patients' recreation center Superintendent of the hospital is Dr Bardwell H Flower



The William A Bryan Treatment Center of Worcester State Hospital

Professorship in Gynecology—The Joe Vincent Meigs Fund for the establishment of a professorship in gynecology at the Harvard Medical School, Boston, has been announced The professorship is named in honor of Dr Joe Vincent Meigs, professor of gynecology in the Harvard Faculty of Medicine, who retired as chief of staff of the Vincent Memorial Hospital and chief of gynecologic service of the Massachusetts General Hospital to become visiting gynecologist to both institutions A report from the Harvard Medical School states that the Vincent laboratory was started by Dr Meigs and Dr Maurice Fremont-Smith in the early 1940 s In supporting collaborative research, the Joe Vincent Meigs Fund for teaching and research in gynecology was conceived For information write The Joe Vincent Meigs Fund, 24 Milk St, Boston, Mass

MINNESOTA

Personal—Dr Joyce S Lewis has been named director of the Hamm Memorial Psychiatric Clinic, St Paul Dr Lewis succeeds Dr Clarence J Rowe, who resigned to enter private practice Dr Rowe has also accepted an assignment as a psychiatric consultant at the clinic, thus filling a post which has been open for some time Dr Lewis, who has served as instructor of psychiatry will continue as a clinical instructor in the department of psychiatry, University of Minnesota Medical School, Minneapolis

Cancer Research Training Programs—Two training programs in cancer research at the University of Minnesota Medical School, Minneapolis, have been announced The programs are sponsored by the National Cancer Institute of the Department of Health, Education, and Welfare, Public Health Service, National Institutes of Health, and are administered by the departments of physiological chemistry, physiology, and pathology and by the department of bacteriology and immunology The programs are designed to provide training in experimental cancer research for predoctoral and postdoctoral candidates in the basic disciplines of pathology, physiology, physiological chemistry, microbiology, immunology, and cell culture A coodinated teaching and research program has been organized within the four departments Information may be obtained from Mr John F Van Pilsum, Program Training Director, Department of Bacteriology and Immunology, University of Minnesota Medical School, Minneapolis

NEW YORK

Society News—At the annual meeting of the New York Academy of Gastroenterology the following officers were elected for 1957-1958 president, Dr Jerome A Marks, president-elect, Dr Milton J Matzner, first vice-president, Dr Michael Weingarten, second vice-president, Dr Joseph R Van Dyne, secretary, Dr Alexander Slanger, recording-secretary, Dr Jerome Weiss, and treasurer, Dr William C Jacobson

NORTH CAROLINA

State Medical Election—The following officers of the North Carolina Medical Society have been elected president, Dr Edward W Schoenheit, Asheville, succeeding Dr Donald B Koonce, Wilmington, president elect, Dr Lenox D Baker, and vice-presidents, Dr Amos N Johnson, Garland, and Dr George Holmes, Winston-Salem

OHIO

Muscular Dystrophy Clinic—Establishment of a new Muscular Dystrophy Clinic in Cincinnati, with a $10,000 allocation from Muscular Dystrophy Associations of America, Inc, has been announced The new clinical facility, installed at the Children's Convalescent Hospital and Rehabilitation Center, University of Cincinnati College of Medicine, is under the direction of Dr John E Allen The clinic will begin serving an estimated 50 child patients, with additional children and adults with muscular dystrophy and allied diseases to be drawn from neighboring Kentucky and Indiana The grant is part of the latest dystrophy associations allocations, totaling $165,512 to support research and to establish or maintain clinic services

PENNSYLVANIA

Society News—The following officers were elected at the annual session of the Pittsburgh Roentgen Society president, Dr Erwin Beck, vice-president, Dr Harrison Richardson, secretary, Dr Edward M Schultz, and treasurer, Dr James Hayes

Philadelphia

Personal—Marion Spencer Fay, Ph D, dean of the Woman's Medical College of Pennsylvania, received an honorary degree of doctor of medical science from Beaver College at their 104th commencement exercises Dr Fay, coming to the Woman's Medical College in 1935, has served as dean of this institution since 1943

SOUTH CAROLINA

Society News—The members of the South Carolina Radiological Society have elected the following officers president, Dr William Klauber, vice-president, Dr Samuel Fisher, and secretary-treasurer, Dr Wayne Reeser

WASHINGTON

State Association Meets in Seattle—The 68th annual convention of the Washington State Medical Association will be held in the Olympic Hotel, Seattle, Sept 15-18 Dr Gunnar Gundersen, of La Crosse, Wis, president-elect of the American Medical Association, will be a speaker Four half-day symposiums will be conducted on Sept 17 and 18 on the subjects of noise in industry, office management of joint disease, prenatal problems, and trauma of the hand The following papers will be presented by out-of-state guest speakers

The Doctor and the Industrial Noise Problem, Dr Aram Glorig Jr, Los Angeles
The Management of Three Common Joint Diseases—Rheumatoid Arthritis, Osteoarthritis and Gout, Dr Charles Ragan, New York
Recent Laboratory Tests for Rheumatoid Arthritis, Dr John P Wallace Thomas, Vancouver B C
The Early Recognition of Difficult Labor, Dr D Frank O Kaltreider, Baltimore
Bleeding in the First Trimester Dr Ralph C Benson Portland, Ore
Early Care of Open Hand Injuries, Dr Michael L Mason Chicago

An annual golf tournament and salmon fishing derby are planned For information write Dr James H Berge, president, Washington State Medical Association, 1309 Seventh Ave, Seattle 1, Wash

WISCONSIN

Viral and Rickettsial Symposium—The University of Wisconsin School of Medicine has announced a symposium on latency and masking in viral and rickettsial infections to be held on the campus Sept 4-6 The purpose of the symposium is to consider recent information in human, animal, and plant systems that bear on the interaction between host cell, infecting agent, and the cellular environment The program is divided into three general discussion areas after a keynote address by Dr Christopher H Andrewes, of London, England The first day will be devoted to 'Viral Characteristics Leading to Masking and Latency,' the second to "Factors of Host Cell and Environment to Masking and Latency," and the third to 'The Role of Inhibitors in Masking and Latency" A final summary and critique is scheduled for the final afternoon to discuss common terminology and the present concepts of mechanism Participants include Dr Andrewes and F C Bawden, from England, A Lwoff, from France, and C H Berghold, from Canada For information write Dr A S Evans, Division of Preventive Medicine, University of Wisconsin Medical School, Madison, Wis

WYOMING

State Medical Election—At the annual meeting of the Wyoming State Medical Society the following officers were elected president, Dr Harlan B Anderson, of Casper, president-elect, Dr Luther H Wilmoth, of Lander, vice-president, Dr Benjamin Gitlitz, secretary, Dr Francis A Barrett, Cheyenne, and treasurer, Dr Carleton D Anton, of Sheridan

GENERAL

Medical Research Fellowships and Grants—Applications for awards available July 1, 1958, will be received by the Life Insurance Medical Research Fund as follows (1) Until Oct 15, for postdoctoral research fellowships Candidates may apply for support in any field of the medical sciences Preference is given to those who wish to work on cardiovascular function and disease or related fundamental problems Minimum stipend is $3,800, with allowances for dependents and necessary travel (2) Until Nov 1, for grants to institutions in aid of research on cardiovascular problems Support is available for physiological, biochemical, and other basic work broadly related to cardiovascular problems as well as for clinical research in this field About $1,000,000 will be available for the two types of award Information and application forms may be obtained from the Scientific Director, Life Insurance Medical Research Fund, 345 E 46th St, New York 17

Pediatric Cardiology Fellowship—A clinical fellowship in pediatric cardiology is offered in the department of pediatrics of the Yale University School of Medicine, New Haven, Conn The stipend is $4,500 per annum but the candidate must be a United States citizen and have had at least two years of pediatric training Pediatric cardiac diagnostic and follow-up clinics, consultations, and assistance in the care of cardiac surgical patients will be offered, together with the performance of various diagnostic examinations and assistance with research in the cardiovascular laboratory The applicant should correspond with Dr Milton J E Senn, professor of pediatrics, or Dr Ruth Whittmore, Director, New Haven Rheumatic Fever and Cardiac Program, Department of Pediatrics, Grace-New Haven Community Hospital, 333 Cedar St, New Haven 11, Conn

Prevalence of Poliomyelitis—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States, its territories and possessions in the weeks ended as indicated

Area	June 29 1957 Paralytic Type	June 29 1957 Total Cases	June 30 1956 Total Cases
New England States			
Maine			
New Hampshire			
Vermont			
Massachusetts			
Rhode Island			
Connecticut		2	
Middle Atlantic States			
New York	3	6	13
New Jersey		3	6
Pennsylvania		1	1
East North Central States			
Ohio			2
Indiana	2	2	2
Illinois		2	21
Michigan	1	3	10
Wisconsin		1	5
West North Central States			
Minnesota			2
Iowa		2	1
Missouri		1	8
North Dakota			1
South Dakota		1	1
Nebraska			2
Kansas			4
South Atlantic State			
Delaware			
Maryland			2
District of Columbia			1
Virginia			6
West Virginia	1	1	
North Carolina		1	1
South Carolina	2	7	2
Georgia	2	3	3
Florida	2	5	17
East South Central State			
Kentucky			
Tennessee	3	16	2
Alabama		3	2
Mississippi		3	7
West South Central States			
Arkansas	1	4	2
Louisiana	5	12	20
Oklahoma		6	7
Texas	19	39	41
Mountain States			
Montana			3
Idaho			1
Wyoming		2	2
Colorado			5
New Mexico			1
Arizona		1	
Utah		1	2
Nevada			
Pacific States			
Washington			1
Oregon			
California	1	14	50
Territories and Possessions			
Alaska			
Hawaii			
Puerto Rico			3
Total	42	142	260

Medico Legal Seminar—The annual Belli Seminar was held in New York City, July 5-6. The seminar included discussions of the law for the trial lawyer trying all phases of legal cases from taxation to and including personal injury law. The informal seminar featured cases and experiences presented by physicians as well as lawyers, and slides, among other things, surgical operations and fact investigations. Specialists in pathology, toxology, psychiatry, obstetrics, pediatrics, surgery, and other fields discussed their particular functions. Among the speakers were Dr. Paul D. Kantor, professor of law, Georgetown University, and a general practitioner, and Dr. Nicholson Eastman, head, obstetrics, Johns Hopkins Hospital, who spoke on "Trauma in Obstetrics." Information may be obtained from Melvin M. Belli, TWA Building, 240 Stockton Street, San Francisco 8, Calif.

Multiphasic Screening Tests—A recent release from the Public Health Committee of the Medical Society of the County of Kings reported that 63 members of the society were given screening tests during the evening of Dec. 18, 1956, while a meeting was in progress. A chest x-ray, urinalysis, blood smear, height and weight, blood pressure reading, and electrocardiogram were taken. Each doctor received a number which made the examinations and results confidential. A team of experts in their respective fields analyzed each laboratory procedure, whereas the complete examination was analyzed and reported back by a team of internists. Of a total of 59 completed examinations, made up of this random sample, 10 had no knowledge of definite heart disease. Eight others had suspicious findings to justify further study. Seven had lung disease of remote origin and two of recent origin that was not revealed by the doctor in his screening history. Nine had hypertension without previous knowledge of this disturbance. Three urinalyses were positive for albumin and one for sugar. These findings were reported back to the doctor for further investigation. Twenty-four (40%) of those examined were found to be obese.

Personal—Announcement has been made of the appointment of Thomas Harrison Davies, Ph.D., as a director of research of the Mellon Institute, Pittsburgh. Dr. Davies has been the administrative head of the Multiple Fellowship sustained in the institute since 1952 by the Pittsburgh Plate Glass Company. Prior to joining Mellon Institute Dr. Davies was an associate professor in the Institute for Nuclear Studies, in the Department of Chemistry, and in the Institute of Radiobiology and Biophysics of the University of Chicago.——The National Academy of Sciences has announced that Dr. George Darling, professor of human ecology, Yale University, New Haven, Conn., has been named director of the Atomic Bomb Casualty Commission, with headquarters in Hiroshima and Nagasaki, Japan. The commission, which is operated by the National Academy of Sciences in close cooperation with the Japanese government, has since 1946 been conducting long-term studies of Hiroshima and Nagasaki populations to identify any latent biological effects from the ionizing radiation of the atomic bomb of World War II. Professor Darling has served as executive secretary of the Academy and Research Council. In 1946, he became director of medical affairs at Yale, a post which he retained until his appointment to the newly established professorship of human ecology in 1952. In his new position Professor Darling will be succeeding Dr. Robert H. Holmes, retiring after three years as director.

Society News —The following officers of the **American Diabetes Association** were elected for the organizational year 1957-1958 president, Dr John A Reed, Washington, D C , first vice-president, Dr Alexander Marble, Boston, second vice-president, Dr Francis D W Lukens, Philadelphia, secretary, Dr Franklin B Peck Sr , Indianapolis, and treasurer, Dr William H Olmsted, St Louis —At a recent meeting of the **American Radium Society** the following officers were elected for the year 1957-1958 president, Dr Ralph T Ogden, Hartford, Conn , president-elect, Dr Milford D Schulz, Boston, first vice-president, Dr Ralph M Caulk, Washington, D C , second vice-president, Elizabeth F Focht, New York City, secretary, Dr Theodore R Miller, 139 East 36th St , New York 16, and treasurer, Dr Jesshill Love, Louisville The 40th annual meeting of the society will be held March 27-29, 1958, at the Hollywood Beach Hotel, Hollywood Beach, Fla —At the annual meeting of the **American Goiter Association** held recently the following officers were elected president, Dr Elmer C Bartels, Boston, president-elect, Dr Warren H Cole, Chicago, first vice-president, Dr William P Kroger, Los Angeles, second vice-president, William L Money, Ph D , New York City, third vice-president, Dr Mavis P Kelsey, Houston, Texas, secretary, Dr John C McClintock, Albany, N Y , and treasurer, Edwin G Ramsdell, White Plains, N Y The next annual meeting of the association will be held in San Francisco June 17-19, 1958 —At the second annual meeting of the **Flying Physicians Association** the following officers were elected Dr Samuel D Sullennerger, Dandridge, Tenn , president, and Drs Charles M Starr, North Hollywood, Calif , Donald W Smith Miami, Fla , Gordon Jones, Olympia, Wash , Charles H Loomis, Richmond, Ind , John J Quinlan, Brantford, Ont , James Y Bradfield, Dallas, Texas, vice-presidents —Recently the following officers of the **Association of Surgeons of the Southern Railway System** were elected president, Dr Cecil E Newell, Chattanooga, Tenn , first vice-president, Dr Battle Malone II, Memphis, Tenn , second vice-president, Dr Sam Orr Black, Spartanburg, S C , third vice-president, Dr Arthur B Bradsher, Durham, N C , fourth vice-president, Dr Walter R Brewster, New Orleans, recording secretary, Dr John M Frere Sr , Chattanooga, and secretary-treasurer, Dr William J Ashton, Washington, D C —Officers of the **American Surgical Association** for the coming year are as follows president, Dr John H Mulholland, first vice-president Dr Richard K Gilchrist, second vice-president, Dr Henry N Harkins, secretary, Dr William A Altemeier, treasurer, Dr John C Burch, and recorder, Dr John E Dunphy —At the 18th annual meeting of the **Society for Investigative Dermatology** the following officers were elected president, Dr Walter C Lobitz Jr , Hanover, N H , vice-president, Dr Hermann K B Pinkus, Monroe, Mich , and secretary-treasurer, Dr Herman Beerman, Philadelphia

CORRECTION

Use of Artificial Kidney After Poisoning —In the letter to the Editor on the use of artificial kidney, in THE JOURNAL, June 22, page 916, in the 10th line of the first paragraph, '25 mg " should have read "25 Gm '

EXAMINATIONS AND LICENSURE

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS *Part I* Various Centers, Sept 3-4 Sec , Dr John B Hubbard, 133 South 36th St Philadelphia 4

MEDICAL SPECIALTY BOARDS

AMERICAN BOARD OF ANESTHESIOLOGY *Oral* Washington, Oct 28-Nov 1 Sec , Dr Curtiss B Hickcox, 80 Seymour St , *Hartford* 15

AMERICAN BOARD OF DERMATOLOGY *Oral* Baltimore, Oct 11-13 Final date for filing application was April 1 Sec , Dr Beatrice Maher Kesten, One Haven Ave , New York 32

AMERICAN BOARD OF INTERNAL MEDICINE *Written* Oct 21 *Oral* Los Angeles, Sept 11-14 Final date for filing applications was Feb 1 Exec Sec , Dr W A Werrell, 1 West Main St , Madison 3, Wis

AMERICAN BOARD OF NEUROLOGICAL SURGERY Examination given twice annually, in the spring and fall In order to be eligible a candidate must have his application filed at least six months before the examination time Sec Dr Leonard T Furlow, Washington University School of Medicine, St Louis 10

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY *Part I* Chicago, Jan 2 *Part II* Chicago, May 7-17 Final date for filing application is September 1 Sec , Dr Robert L Faulkner, 2105 Adelbert Road, Cleveland 6

AMERICAN BOARD OF OPHTHALMOLOGY *Oral* Chicago, Oct 7-11 *Written* January 1958 Final date for filing application was July 1 Sec , Dr Merrill J King, Box 236, Cape Cottage Branch, Portland 9, Maine

AMERICAN BOARD OF ORTHOPAEDIC SURGERY *Part II* New York City, Jan 29 31, 1958 Final date for filing application is August 15 Sec , Dr Sam W Banks 116 South Michigan Avenue Chicago 3

AMERICAN BOARD OF OTOLARNGOLOGY Chicago, Oct 7-11 Final date for filing application was in April Sec , Dr Dean M Lierle, University Hospitals, Iowa City

AMERICAN BOARD OF PATHOLOGY *Oral and Written Pathologic Anatomy and Clinical Pathology* New Orleans, Sept 26-28 Final date for filing application is August 15 Sec , Dr Edward B Smith, Indiana University Medical Center, Indianapolis 7

AMERICAN BOARD OF PLASTIC SURGERY *Oral and Written Examination* San Francisco Oct 31-Nov 2 Final date for filing case reports was July 1 Corresponding Sec , Miss Estelle E Hillerich, 4647 Pershing Ave St Louis 8

AMERICAN BOARD OF PROCTOLOGY *Oral and Written Parts I and II* September Sec , Dr Stuart T Ross, 520 Franklin Ave , Garden City, N Y

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY New York, Dec 16 17 San Francisco, March 17-18 Sec , Dr David A Boyd, Jr , 102-110 Second Ave S W , Rochester, Minn

AMERICAN BOARD OF RADIOLOGY Washington Sept 23 28 Final date for filing application was June 1 Sec , Dr H Dabney Kerr, Kahler Hotel Bldg Rochester, Minn

AMERICAN BOARD OF SURGERY *Part II* Buffalo, Sept 23 24, New Haven Oct 21-23, Indianapolis, Nov 18-19, Cincinnati, Dec 16-17, New Orleans, Jan 13-14, Durham, N Car , Feb 10 11, Baltimore, March 10-11 Chicago, May 12-13, Los Angeles, June 16 17 and Portland, Oregon, June 20 21 Sec , Dr John B Flick, 225 So 15th St , Philadelphia 2

AMERICAN BOARD OF UROLOGY *Written examination* Various cities throughout the country *Pathology and Oral Clinical* February 1958 Location not decided Exec Secretary, Mrs Ruby L Griggs, 30 Westwood Road, Minneapolis 16

BOARD OF THORACIC SURGERY *Written* Various centers throughout the country, September 1957, and the closing date for registration was July 1, 1957 Sec , Dr William H Tuttle, 1151 Taylor Ave , Detroit 2

DEATHS

Van Kleeck, Louis Ashley, Great Neck, N Y, born in 1887, Cornell University Medical College, New York City, 1909, an associate member of the American Medical Association and in 1935, 1940, 1944, and 1947 a member of its House of Delegates, past-president and vice-president of the New York State Association of School Physicians, past-president of the Nassau County Medical Society and the Second District Branch of the Medical Society of the State of New York, fellow of the American College of Physicians, American Academy of Pediatrics, and the Brooklyn Academy of Pediatrics, for many years associated with the Nassau Hospital in Mineola, Meadowbrook Hospital in Hempstead, and St Francis Hospital and Sanatorium for Cardiac Children in Roslyn, formerly school physician in the Manhasset public schools, a founder, a director, and vice-president and president of the First National Bank and Trust Company of Manhasset, now the Manhasset branch of the Meadow Brook National Bank, died in New York Hospital April 30, aged 69, of hypertensive cardiovascular disease

Yudkin, Arthur Meyer ⊕ New Haven, Conn, born in Ansonia in 1892, Yale University School of Medicine, New Haven, 1917, specialist certified by the American Board of Ophthalmology, member of the American Academy of Ophthalmology and Otolaryngology, American Ophthalmological Society, and the Association for Research in Ophthalmology, clinical professor of ophthalmology at his alma mater, past-president of the Association of Yale Alumni, associated with Grace–New Haven Community Hospital and the Hospital of St Raphael, an associate editor of "Practitioners' Library of Medicine and Surgery", died in Wallingford May 2, aged 65, of a heart attack

Chase, William Wiley ⊕ Washington, D C, born in Baltimore June 5, 1901, University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1927, member of the Southeastern Surgical Congress, fellow of the American College of Surgeons, veteran of World War II, in 1955 awarded an honorary doctor of science degree by Western Maryland College, Westminster, of which he was a board member, associated with the George Washington University Hospital and the Garfield Memorial Hospital, where he died May 16, aged 55, of bronchogenic carcinoma

Hardison, Thomas William ⊕ Morrilton, Ark, born in 1884, (licensed in Arkansas, 1905), past-president of the Conway County Medical Society, served as a member and chairman of the State Park Commission, a member of the Arkansas Resources and Development Commission and chairman of its park committee from 1945 to 1953, held an honorary doctor of laws from Hendrix College, received the Cornelius Amory Pugsley Medal from the American Scenic and Historic Preservation Society, served as county health officer, on the honorary staff, St Anthony's Hospital, where he died April 7, aged 73, of infectious hepatitis

Hopkins, Brewster Arthur ⊕ Stuart, Va, born in Buffalo Ridge, Dec 5, 1903, Medical College of Virginia, Richmond, 1929, interned at the City Memorial Hospital in Winston-Salem, N C, and later senior assistant physician at the Central State Hospital in Petersburg, past-president of the Patrick–Henry Counties Medical Society, member of the American Academy of General Practice, one of the organizers and for many years member of the board of directors of the Virginia Academy of General Practice, on the staff of the Stuart Hospital, died April 22, aged 53, of coronary thrombosis

Peggs, Harry MacDonald ⊕ St Albans, Vt, born in Swanton in 1878, Baltimore University School of Medicine, 1900, fellow of the International College of Surgeons, formerly practiced in Staten Island, N Y, where he was co-founder and chief surgeon at the Richmond Memorial Hospital and on the staff of St Vincent's Hospital, associated with the Fanny Allen Hospital in Winooski, and St Albans and Kerbs Memorial hospitals, for many years a director of the Tottenville National Bank in Staten Island, died in the Mary Fletcher Hospital, Burlington, April 20, aged 78, of pneumonia

Richards, Samuel Burgess ⊕ San Bernardino, Calif, born in Carrsville, Ky, Feb 3, 1881, College of Physicians and Surgeons, Los Angeles, 1906, fellow of the American College of Surgeons, past-president of the San Bernardino County Medical Society, served as county health officer, at one time practiced in Victorville, where he was a member of the school board, formerly medical superintendent of the San Bernardino General Hospital, associated with St Bernardine's and San Bernardino County Charity hospitals, died May 5, aged 76, of myocardial infarct and coronary arteriosclerosis

Smith, Herbert Leander, Watertown, N Y, born in Rutland, N Y, Aug 26, 1863, University of Buffalo School of Medicine, 1888, an associate member of the American Medical Association, served as county coroner, county physician, and as health officer of Watertown, associated with the House of the Good Samaritan and Mercy Hospital, for many years medical superintendent of the Jefferson County Tuberculosis Sanatorium, now known as the Jefferson County Sanatorium and Hospital for Chronic Diseases, where he was on the staff, and where he died March 19, aged 93, of uremia and arteriosclerosis

Tabor, Gilbert Stevens ⊕ Millerton, N Y, born in Dover Plains, Aug 17, 1898, University and Bellevue Hospital Medical College, New York City, 1919, past-president of the Dutchess County Medical Society, specialist certified by the American Board of Otolaryngology, member of the American Academy of Ophthalmology and Otolaryngology and the American Oto-rhinologic Society for Plastic Surgery, village health officer, on the staff of the Sharon (Conn) Hospital, a director of the Millerton National Bank, died April 4, aged 58, of liver abscesses secondary to carcinoma of the duodenum

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⊕ Indicates Member of the American Medical Association

Hyatt, Robert Fee Jr ⊕ Monticello, Ark, University of Arkansas School of Medicine, Little Rock, 1939, member of the American Academy of General Practice, member of the school board, veteran of World War II, member and past-president of the Rotary Club, served as director of the Chamber of Commerce, received the Silver Beaver Award for his service in the Boy Scouts, died April 11, aged 45, when the automobile in which he was riding plunged off an embankment near Hampton into backwaters of the swollen Quachita River

McElroy, Joseph Dean ⊕ Atlanta, Ga, born in Atlanta Sept 6, 1915, Medical College of Georgia, Augusta, 1941, specialist certified by the American Board of Psychiatry and Neurology, member of the American Psychiatric Association, recently appointed a member of the advisory committee for the mental hygiene division of the Georgia Health Department, served on the faculty of Emory University School of Medicine, veteran of World War II, associated with Grady Memorial and Crawford W Long hospitals and St Joseph's Infirmary, died April 26, aged 41

Pate, James Gibson ⊕ Gibson, N C, University of Pennsylvania School of Medicine, Philadelphia, 1916, past-president of the Scotland County Medical Society, for many years member of the Scotland County Welfare Board and a member of the school board of Gibson, chairman of the board of the Commercial State Bank, past-president of the Bank of Gibson, served on the staffs of the Marlboro County Hospital in Bennettsville, S C, and the Scotland County Memorial Hospital, Laurinburg, where he died April 19, aged 65, of carcinoma of the prostate

Sabine, Ralph Stoddard ⊕ Murphysboro, Ill, St Louis University School of Medicine, 1908, member of the American Academy of General Practice, an associate member of the International College of Surgeons, past-president of the Southern Illinois Medical Association, veteran of World War I, past-president of the Murphysboro Chamber of Commerce and the Murphysboro Rotary Club, surgeon for the Missouri Pacific Railroad Company, on the staff of St Andrew's Hospital, where he died April 6, aged 75 of coronary occlusion

Turner, William Preston Sr ⊕ Greenwood, S C, born in Cross Hill, April 6, 1881, University of Georgia Medical Department, Augusta, 1904, fellow of the American College of Surgeons, for many years commissioner of public works, served on the board of the Connie Maxwell Children's Home, on the staff of the Self Memorial Hospital, past-president of the Greenwood Rotary Club and in 1953 received its Man of the Year' community service award as an outstanding practitioner of the Rotary creed service above self' ', died April 2, aged 75, of cerebral hemorrhage

Casebeer, Harvey Lee ⊕ Butte, Mont, University of Nebraska College of Medicine, Omaha, 1933, member of the Industrial Medical Association, past vice-president of the Montana Medical Association, past-president of the Silver Bow County Medical Society and the Montana Academy of Oto-Ophthalmology, associated with St James Hospital a director and past-president of the Butte Chamber of Commerce, died April 27, aged 49, of injuries received in an automobile accident

Clovis, Elijah Ellsworth ⊕ Wheeling, W Va, College of Physicians and Surgeons, Baltimore, 1905, member of the American Trudeau Society, fellow of the American College of Physicians, from 1912 to 1924 superintendent of the Hopemont (W Va) Sanitarium, of which he was a founder, for many years superintendent of the Ohio County Sanitarium, served as medical director of the Conservative Life Insurance Company, died May 13, aged 77, of arteriosclerotic heart disease

Hayt Ralph Augustus, Fishkill N Y born Nov 11, 1877, Columbia University College of Physicians and Surgeons, New York City 1900, veteran of the Spanish-American War, served as consulting surgeon at the Matteawan State Hospital in Beacon, at one time on the staff of the Veterans Administration Hospital in Castle Point, formerly on the courtesy staffs of Vassar Brothers and St Francis hospitals in Poughkeepsie, until his retirement associated with Highland Hospital in Beacon, where he died April 5, aged 79

Loeb, Ludwig, Philadelphia, Jefferson Medical College of Philadelphia 1890, an associate member of the American Medical Association, co-founder and for many years medical director of the National Stomach Hospital, co-founder of the American Hospital for Diseases of the Stomach, for many years associated with the Jewish Maternity and Jewish hospitals, served as consulting physician at the Mount Sinai Hospital, died in the Pennsylvania Hospital May 4, aged 91

O'Brien, Augustus Joseph ⊕ Ironwood, Mich, University of Michigan Department of Medicine and Surgery, Ann Arbor, 1908, also a graduate in pharmacy, fellow of the American College of Surgeons, past-president of the American Association of Railway Surgeons, served as surgeon for the Soo Line and Chicago and Northwestern railroads, on the staff of Grandview Hospital, for many years a director of the Gogebic National Bank, died in Divine Infant Hospital, Wakefield, April 23, aged 74, of coronary occlusion

Oppenheimer, Seymour, New York City, University of the City of New York Medical Department, New York City, 1892, specialist certified by the American Board of Otolaryngology, member of the New York Academy of Medicine, served on the staffs of the Monmouth Memorial Hospital in Long Branch, N J, and the Gouverneur, Sydenham, Bellevue, Willard Parker, and Mount Sinai hospitals, and the Hospital for Joint Diseases, died in St Lukes Hospital April 21, aged 84, of carcinoma of the kidney

Tressel, Henry Arthur ⊕ Wakefield, Mich, Northwestern University Medical School, Chicago, 1911, for many years served on the board of education, Wakefield township school physician, for many years city health officer, until 1956 chief of staff at the Divine Infant of Prague Hospital, where he was an active staff member, the city of Wakefield named a park in his honor, died in the Fairview Hospital, Minneapolis, April 23, aged 69, of acute anterior myocardial infarction

Allison, Robert Seaman ✠ Salt Lake City, Rush Medical College, Chicago, 1904, fellow of the American College of Surgeons, served on the staff of St Mark's Hospital, died May 21, aged 79, of heart disease

Ankley, Jerome W ✠ Grosse Pointe Park, Mich , Detroit College of Medicine and Surgery, 1920, associated with St John and East Side hospitals, and the Detroit Memorial Hospital in Detroit, where he died April 27, aged 60, of hypertensive heart disease and cerebral hemorrhage

Arnette, Clarence Larry Edward, Alexandria, Va , Medical College of Virginia, Richmond 1933, member of the Medical Society of Virginia, past-president of the alumni association of his alma mater, member and past-president of the staff of the Alexandria Hospital, associated with the Circle Terrace Hospital, where he died May 12, aged 51, of brain tumor

Asnis, Eugene Jacob, Woodbury, N J , Medico-Chirurgical College of Philadelphia, 1898, died in East Greenwich Township March 7, aged 78, of congestive heart disease and arteriosclerotic heart disease

Bagby, John Robert ✠ Pulaski, Va , University of Maryland School of Medicine, Baltimore, 1893, served as health officer of the Port of Newport News, died in the Pulaski Hospital March 21, aged 88, of cerebral hemorrhage and arteriosclerosis

Baggerly, Walter E ✠ Montrose Mo , University Medical College of Kansas City, Mo 1907, died March 7 aged 74 of heart disease

Banks, George Augustus, Wellsville, Ohio, Meharry Medical College, Nashville, Tenn , 1912, for many years practiced in Wheeling W Va , died April 24, aged 72 of cerebrovascular accident

Bardes, Albert Charles New York City, Bellevue Hospital Medical College, New York City 1893, died in St Luke s Hospital April 18, aged 87, of arteriosclerosis

Barr, John Walter, Mill Creek Pa , Jefferson Medical College of Philadelphia 1905, an associate member of the American Medical Association, veteran of World War I, consultant in dermatology at the Conemaugh Valley Memorial Hospital in Johnstown where he was chief of dermatology from 1922 to 1942, when he retired, died in the Veterans Administration Hospital Altoona May 1, aged 78 of encephalomalacia and arteriosclerosis

Beardsley, John Frederick ✠ Frankfort, Ind , Hahnemann Medical College and Hospital of Philadelphia, 1946, interned at the Indianapolis City Hospital, on the staff of the Clinton County Hospital, where he died May 5, aged 35, of diabetes mellitus

Behn Claud William ✠ Detroit, University of Michigan Medical School, Ann Arbor, 1921, member of the American Academy of Dermatology and Syphilology, held positions in dermatology at Woman's, Harper, Michigan Mutual, and old St Marys hospitals, died May 12, aged 61, of cerebral thrombosis

Bingham, Junius Warren, West Plains, Mo , Marion-Sims College of Medicine, St Louis, 1898, died April 13 aged 86

Bonus, Harrietta Margarete, Chicago, Loyola University School of Medicine, Chicago, 1928, died May 8, aged 57, of a heart attack

Garner, Casper Elbert, Richland Center, Wis , Milwaukee Medical College, 1906, died April 29, aged 76, of cancer

Garren, Robert Hall ✠ Monroe, N C , University of Nashville (Tenn) Medical Department, 1900, member of the staff of the Union Memorial Hospital, died in the Ellen Fitzgerald Hospital April 21, aged 84, of coronary occlusion

Gaston, Stobo Rosebourgh, Travelers Rest, S C, Medical College of the State of South Carolina, Charleston, 1928, owner of a hospital bearing his name, died April 3, aged 56

Gibson, Ira Malcolm ✠ Valdosta, Ga , University of Chicago The School of Medicine, 1941, served on the faculty of the Emory University School of Medicine, Atlanta, died in the Pineview General Hospital March 31, aged 47, of coronary disease

Gillis, George Hiram ✠ Wiconisco, Pa , University of Pittsburgh School of Medicine, 1910, died in Harrisburg April 18 aged 73

Gleason, Notery Arthur ✠ Flint, Mich , Detroit College of Medicine and Surgery, 1926, member of the American Academy of Dermatology and Syphilology, associated with Hurley and McLaren hospitals, and St Joseph's Hospital, where he died April 4, aged 58, of bronchogenic cancer

Godbold Percy Ellis ✠ Pine Hill, Ala , Atlanta College of Physicians and Surgeons, 1902, died in Selma April 3 aged 77 of cancer

Haberfeld, Fritz Frederick, New York City, Medizinische Fakultat der Universitat, Vienna, Austria 1936 member of the Medical Society of the State of New York veteran of World War II, died April 2, aged 52 of coronary thrombosis and coronary arteriosclerosis

Hallinger Earl Stephen, Haddonfield, N J , Hahnemann Medical College and Hospital of Philadelphia, 1903 an associate member of the American Medical Association formerly secretary of the New Jersey Board of Medical Examiners, fellow of the American College of Surgeons on the emeritus staff, West Jersey Hospital in Camden where he died May 7, aged 77 of cerebral vascular accident with pneumonia

Hamilton Ralph Emerson, Douglasville, Ga , Emory University School of Medicine, Atlanta, 1916, member of the Medical Association of Georgia, died March 30 aged 65, of coronary infarction

Havlicek, Theodore Leo, Portland, Ore , Creighton University School of Medicine, Omaha, 1928, service member of the American Medical Association, member of the American Trudeau Society, veteran of World War II, associated with the Veterans Administration, died May 4, aged 54

Haylett, Howard Bulkeley ✠ East Hartford, Conn , University of Vermont College of Medicine, Burlington, 1907, on the consulting staff, Hartford (Conn) Hospital, where he died May 1, aged 72, of congestive heart failure

Hazel, James Kevin ⊕ Hayden, Ariz, University of Michigan Medical School, Ann Arbor, 1925, veteran of World Wars I and II, died April 21, aged 61, of coronary thrombosis

Heatley Joseph Lawrence ⊕ Pittsburgh, University of Pittsburgh School of Medicine, 1930, fellow of the American College of Surgeons, also a graduate in pharmacy, on the courtesy staff, Homestead (Pa) Hospital, died April 23, aged 53, of heart failure

Heffering, Russell Joseph ⊕ White Plains, N Y, University of Toronto Faculty of Medicine, Toronto, Ontario, Canada, 1927, for many years physician to the White Plains High School athletes, fellow of the American College of Surgeons, associated with White Plains Hospital, died in Mount Vernon May 7, aged 60

Heidt, George Frank ⊕ Charleston, S C, Medical College of the State of South Carolina, Charleston, 1915, also a graduate in pharmacy, died May 2, aged 66

Henderson, Frank Harold ⊕ Bloomington, Ill, Hering Medical College, Chicago, 1905, associated with Mennonite Hospital and St Joseph's Hospital, where he died April 16, aged 76 of a cerebral vascular accident and hypertension

Hillegass, Victor Ellsworth ⊕ Akron, Ohio, Ohio State University College of Medicine, Columbus, 1940, member of the American Academy of General Practice, veteran of World War II, died in the Akron General Hospital April 12 aged 44

Hollander, John David ⊕ Ripon, Calif, Chicago Medical School, 1943, veteran of World War II, associated with the Memorial and City hospitals, Modesto, member of the American Academy of General Practice, died April 30, aged 42, of coronary disease

Hulles, Edward, New York City, Medizinische Fakultat der Universitat, Vienna, Austria, 1907, died in the Metropolitan Hospital April 7, aged 74, of congestive cardiac failure and arteriosclerosis

Hux, William Jackson, Essex, Mo, Vanderbilt University School of Medicine, Nashville, Tenn, 1912, member of the Missouri State Medical Association, past-president of the Stoddard County Medical Society, past-president of the Bank of Essex, associated with the Missouri Delta Community Hospital, Sikeston, and the Brandon Hospital in Poplar Bluff, where he died April 22, aged 68

Iorio, Michele, New York City, Regia Universita di Napoli Facolta di Medicina e Chirurgia, Italy, 1923, died in the Fordham Hospital April 5, aged 63, of duodenal ulcer with hemorrhage

Irwin, Wilfred James Hunter ⊕ Niagara Falls, N Y, University of Toronto Faculty of Medicine, Toronto, Ontario, Canada, 1924, served with the Royal Canadian Air Force during World War I, died April 27, aged 61

Jackson, Arthur Page Jr ⊕ Denver, University of Colorado School of Medicine, Denver, 1932, member of the Radiological Society of North America, associated with St Luke's Hospital, died in Idaho Springs, Colo, March 21, aged 49 of cancer of the tongue

Jackson, Jesse Lee ⊕ Indianapolis, Indiana University School of Medicine, Indianapolis, 1914, associated with Methodist, General, St Vincent's, and St Francis hospitals, died April 21, aged 71, of acute myocardial infarction and arteriosclerotic heart disease

Jensen, Viggo Wilhelm, New Smyrna Beach, Fla, Rush Medical College Chicago, 1920, formerly on the staff of the Shelby Community Hospital in Shelby, Mich, died April 22, aged 70, of cancer and cerebral hemorrhage

Johnson, Jeremiah Robert, Elkin N C, Medical College of Virginia, Richmond, 1927, died April 11, aged 65 of pulmonary hemorrhage

Kemper, William Winton, Lancaster, Ohio, Medical College of Indiana, Indianapolis, 1903, died April 17, aged 79, of acute cardiac dilatation

LaDue, Charles Nance ⊕ Dallas, Texas, University of Texas School of Medicine, Galveston, 1938, specialist certified by the American Board of Internal Medicine, fellow of the American College of Physicians, veteran of World War II, clinical instructor of internal medicine at the Southwestern Medical School of the University of Texas, associated with the Methodist and Baylor University hospitals, died May 1, aged 43, of cerebral hemorrhage

Larrabee Charles William, Bradenton, Fla, Eastern University School of Medicine, Baltimore, 1913, an associate member of the American Medical Association, medical director and part owner of the Bradenton General Hospital where he died April 13 aged 86, of pneumonia

Larrabee, Herbert Manson ⊕ Lowell, Mass, Medical School of Maine, Portland, 1901, member of the American Psychiatric Association, served as school physician in Tewksbury, where he was associated with the Tewksbury State Hospital, on the staffs of St John's and St Joseph's hospitals, died April 28, aged 77, of heart disease

Larson, Anders D, Los Angeles, University of Minnesota College of Medicine and Surgery, Minneapolis 1893, died April 20, aged 94

Larson, Oscar Franklin ⊕ Machias, Maine, Albany (N Y) Medical College, 1905, veteran of World War I, past-president of the Maine Medical Association, Washington County Medical Society, and the Maine Medico-Legal Society, served as county medical examiner, formerly associated with the U S Public Health Service, died April 10, aged 76

Lasswell, Bert James, Cromberg, Calif, California Medical College, San Francisco, 1901, served as health officer of Plumas County, veteran of the Spanish-American War and World War I, died April 4, aged 80, of carcinoma

Ledbetter, John Nelson, Clearwater, Fla, St Louis College of Physicians and Surgeons, 1896, died in the Morton Plant Hospital March 21, aged 84, of a cerebral vascular accident

Lee, Edward Kerk, Newburgh, N Y, Harvard Medical School, Boston, 1915, member of the Medical Society of the State of New York, veteran of World War I, served in the regular U S Navy, died April 1, aged 68

Leemhuis, Glenn H, Aitkin, Minn, University of Minnesota Medical School Minneapolis, 1936, died April 10, aged 44, of cerebral hemorrhage

Little, Otis Williamson ⊕ Abilene, Texas, University of Louisville (Ky) Medical Department, 1911, member of the American Academy of General Practice, died in the Hendrick Memorial Hospital March 10, aged 77

Loewenberg, Walter, New York City, Friedrich-Wilhelms-Universitat Medizinische Fakultat, Berlin, Prussia, Germany, 1919, member of the American College of Gastroenterology, on the staff of the Lenox Hill Hospital, died in Ormond Beach, Fla, March 31, aged 64, of coronary occlusion

Lombardi, Generoso, Brooklyn Regia Universita di Napoli Facoltá di Medicina e Chirurgia, Italy, 1921, served on the staffs of the Brooklyn Doctors, Methodist, and Samaritan hospitals, died April 24, aged 61, of cerebral hemorrhage

Long, Henry E, Wyoming, N Y, University of Buffalo School of Medicine, 1894, practiced in Buffalo, where he was associated with Millard Fillmore, Deaconess, and Buffalo General hospitals, died in the Wyoming County Hospital in Warsaw April 8 aged 88, of pneumonia

Long, William Henry, Philadelphia, Jefferson Medical College of Philadelphia, 1896, an associate member of the American Medical Association, for many years attending physician at St John s Orphan Asylum and physician at St Edmond's Home for Crippled Children, served as director of St Mary s Home for the Blind in Lansdale, for many years associated with the Misericordia Hospital, died April 17, aged 86

Looney, Ormand Edgar, Paducah, Texas, College of Physicians and Surgeons, Dallas, 1908, died in Dublin April 19, aged 77

Lyday, William Hall, Greenville, S C, Atlanta Medical College, 1914, member of the South Carolina Medical Association, veteran of World War I, on the staff of the Greenville General Hospital, died May 3, aged 66, of coronary occlusion

McCain, James Price, Pittsburgh, Howard University College of Medicine Washington, D C 1918, died in the Pittsburgh Hospital April 26, aged 65, of postoperative shock and carcinomatosis

McClure Herbert Arant, Mayo, Fla, Atlanta Medical College, 1915, member of the Medical Association of the State of Alabama and the Florida Medical Association, veteran of World War I, served as district health officer of the Florida State Board of Health, at various times health officer of Winston, Choctaw, and Lamar counties in Alabama, died March 21, aged 70, of cerebral hemorrhage and hypertension

McGeorge, Charles Samuel, Negley, Ohio, Western Pennsylvania Medical College, Pittsburgh, 1900, member of the Medical Society of the State of Pennsylvania, an associate member of the American Medical Association, on the board of trustees, First National Bank of Ambridge, served as president of the staff, Sewickley (Pa) Valley Hospital, where he died May 4, aged 82, of cerebral thrombosis

McKenna, Hugh ⊕ Chicago, Rush Medical College, Chicago, 1903, associate professor emeritus of surgery at Northwestern University Medical School, member of the American Surgical Association, fellow of the American College of Surgeons, associated with St Joseph Hospital, died May 12, aged 82, of coronary thrombosis

McMahon, Edmund Stephen ⊕ Butte, Mont, Creighton University School of Medicine, Omaha, 1923, past president of the Silver Bow County Medical Society, member of the staff of Community hospital, member and past-president of the staff, St James Hospital, died March 27, aged 58, of carcinoma of the stomach

Maner, William Albert, Atlanta, Ga, Atlanta College of Physicians and Surgeons, 1901, died March 4, aged 82, of arteriosclerosis and hypertensive cardiovascular disease

March, Samuel Franklin ⊕ Carrollton, Ill, University of Missouri School of Medicine, Columbia, 1909, served on the board of education and board of health, on the staff of the Thomas H Boyd Memorial Hospital, died in Jacksonville April 28, aged 74, of bronchopneumonia

Martin, Mabel Agnes, Binghamton, N Y, Cornell University Medical College, New York City, 1912, an associate member of the American Medical Association, past-president and vice-president of the Broome County Medical Society, for many years on the staff of the City Hospital, died April 21, aged 75, of heart disease

Martin, Robert Vincent ⊕ Savannah, Ga, Medical College of South Carolina, Charleston, 1904, an honorary member and past-president of the Georgia Medical Society, served as a medical officer in the Mexican Border campaign, died April 15, aged 80

Mason, Edward Charles, Oklahoma City, Okla, University of Cincinnati College of Medicine, 1920, professor of physiology at the University of Oklahoma School of Medicine, fellow of the American College of Physicians, at one time fellow in medicine and first assistant in one of the sections on medicine, Mayo Foundation in Rochester, Minn, died in the University Hospital, March 5, aged 65

Mendelsohn, Bernard, Brooklyn, Long Island College of Medicine, Brooklyn, 1936, died in the Kings County Hospital April 13, aged 46, of hypertensive cardiovascular disease

Millis, Robert Jordan ⊕ Crawfordsville, Ind, Indiana University School of Medicine, Indianapolis, 1921, veteran of World War II, served as county health officer and as a member of the board of education, died April 10, aged 59

Moore, Cliff ⊕ Lindale, Ga, Birmingham Medical College, 1913, on the staffs of the Floyd Hospital and the McCall Hospital in Rome, where he died April 26, aged 71, of gastrointestinal hemorrhage

Morrison, James Francis, Brooklyn, Johns Hopkins University School of Medicine, Baltimore, 1904, an associate member of the American Medical Association, in 1929 assistant sanitary superintendent of Brooklyn, served on the staff of Kings County Hospital, died March 23, aged 85, of cerebral hemorrhage and arteriosclerosis

Morrissey, John Henry, New York City, Harvard Medical School, Boston, 1914, member of the Medical Society of the State of New York and the American Urological Association, secretary, Section on Urology, 1934-1935, and chairman, 1935-1936, American Medical Association, specialist certified by the American Board of Urology, on the staffs of the New York and St Clare's hospitals, died April 5, aged 68, of congestive heart failure

Murray, Arthur Thomas, Nineveh, Pa, University of Pittsburgh School of Medicine, 1908, served as county health director, on the staff of the Greene County Memorial Hospital, Greensburg, died March 29, aged 76, of portal cirrhosis

Murray, George Stewart ⊕ Columbus, Ga, University of Edinburgh Faculty of Medicine, Scotland, 1901, served in the British Army during World War I, formerly chairman of the staff, City Hospital, member of the Columbus Board of Public Safety, past-president of the Columbus Rotary Club, died March 31, aged 78, of urinary tract infection due to hemiplegia, cerebral arteriosclerosis, and heart failure

Mutchler, H Raymond, Dover, N J, College of Physicians and Surgeons, Baltimore, 1911, served as county physician, police commissioner, and alderman, on the courtesy staff, Dover General Hospital, died March 30, aged 69, of acute pulmonary edema

Norman, Frank H, Waynesboro, Tenn, University of Tennessee Medical Department, Nashville, 1901, died Jan 22, aged 85

Padget, Samuel ⊕ Philadelphia, Universitatea din Iasi Facultatea de Medicină, Rumania, 1925, for many years on the staff of Albert Einstein Medical Center, Southern Division, where he died May 4, aged 66, of acute myocardial infarction

Parker, Burton D, Grosse Ile, Mich, Michigan College of Medicine and Surgery, Detroit, 1897, veteran of the Spanish American War and World War I, for many years on the staff of the Grace Hospital, where he died March 27, aged 80, of coronary thrombosis, arteriosclerotic heart disease, and prostatic hypertrophy

Parmley, Tim Hennessey ⊕ Electra, Texas, Memphis (Tenn) Hospital Medical College, 1912, died April 15, aged 73, of injuries received in an automobile accident

Parsons, John Eugene ⊕ Little Rock, Ark, University of Arkansas School of Medicine, Little Rock, 1933, served on the staff of St Vincents Hospital, died in Hot Springs March 25, aged 49, of acute coronary occlusion

Pascoe, Charles Samuel ⊕ Tacoma, Wash, University of Michigan Medical School, Ann Arbor, 1915, member of the American Urological Association, on the staff of the Tacoma General Hospital, died April 22, aged 65, of coronary disease

Patterson, Wilfred Peter ⊕ Grand Rapids, Mich, Western University Faculty of Medicine, London, Ontario, Canada, 1921, on the staff of the Blodgett Memorial Hospital, where he died April 8, aged 59, of myocardial infarction

Petersen, Fenton Joseph ⊕ Richmond Heights, Mo, St Louis University School of Medicine, 1928, member of the American Academy of General Practice, health commissioner of Richmond Heights, veteran of World War II, associated with Incarnate Word Hospital and St Mary's Hospital in St Louis, where he died April 12, aged 55, of cerebral hemorrhage

Petter, Reginald S, Beverly Hills, Calif, University of Southern California College of Medicine, Los Angeles, 1902, an associate member of the American Medical Association, died in St John's Hospital, Santa Monica, April 5, aged 78, of a heart attack

Pfeffer, Edward Nicholas ⊕ Milwaukee, Chicago College of Medicine and Surgery, 1914, a member of the city health department staff, died in the Milwaukee Hospital April 9, aged 66, of arteriosclerotic heart disease

Pitz, Henry Robert, Kalamazoo, Mich, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1906, formerly on the staffs of the Bronson Methodist Hospital and the Borgess Hospital, where he died March 28, aged 77, of cerebral vascular accident, hepatic cirrhosis, and arteriosclerotic heart disease

Pitz, Matthias N ⊕ Neenah, Wis, Marquette University School of Medicine, Milwaukee, 1913, died in the Theda Clark Hospital Feb 8, aged 73, of intestinal hemorrhage

Podesta, Joseph S ⊕ Cincinnati, Medical College of Ohio, Cincinnati, 1901, veteran of World War I, died April 25, aged 80, of acute coronary thrombosis

Podgur, Maxwell Philip ⊕ New York City, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1902, veteran of World War I, died April 13, aged 75, of cerebral hemorrhage and arteriosclerosis

Pond, Gilbert Palmer, Oak Park, Ill, Rush Medical College, Chicago, 1920, served as health commissioner, veteran of World Wars I and II, on the executive board of the West Suburban Hospital, where he died May 20, aged 63, of generalized peritonitis

Poole, Frank Augustus ⊕ Saginaw, Mich, Medical College of Ohio, Cincinnati, 1897, formerly city health officer, served as director of industrial hygiene for the Michigan State Department of Health, on the honorary staff of St Mary Hospital, where he died April 25, aged 86

Posner, Bernard ⊕ Brooklyn, Chicago Medical School, 1948, member of the American Academy of General Practice, died in the Beth-El Hospital April 24, aged 40, of arteriosclerotic heart disease and hypertension

Pullen, Guy Foote, Leonia, N J, University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1922, veteran of World War I, died April 1, aged 60

Saunders, Roy Farra ⊕ Fort Worth, Texas, Fort Worth School of Medicine, Medical Department of Fort Worth University, 1905, fellow of the American College of Surgeons, on the staff of St Joseph s Hospital, died March 30, aged 77

FOREIGN LETTERS

BRAZIL

BCG Vaccine—Dr Pedral Sampaio and Brazilian co-workers reported in *Temas de Leprologia*, an Argentine medical magazine, their experience with orally given BCG vaccine Patients who suffered from dermatoses and who were hyperergic to tuberculin were given BCG vaccine by mouth Their cutaneous lesions disappeared, and their general health improved The behavior of the lepromin test in tuberculous patients was studied in 57 patients suffering from active pulmonary tuberculosis in the various stages These patients were hospitalized in Hospital "Clemente Ferreira," Liga Paulista Contra a Tuberculose in São Paulo All but six were given a tuberculin test with 0 001 and 0 01 cu mm of tuberculin Of these, 38 (75 7%) had an allergic reaction The lepromin test was made after the tuberculin reaction The results obtained on the 30th day were as follows the diameter of the papule was 5 mm or more in 33 controls, less than 5 mm in 22, and negative in 2 patients Those whose papules were less than 5 mm in diameter were given one to three doses of BCG vaccine by mouth at seven-day intervals An increase in the diameter of the papule was evident in the patients vaccinated with BCG, while a decrease was shown by the nonvaccinated controls A correlation between the reactions to lepromin and tuberculin and sedimentation rate, age, sex, color, and extent of tuberculous lesions was observed

Strongyloidiasis—Strongyloidiasis may be fatal An example of the seriousness of this infestation was reported by O Arantes Pereira and co-workers (*Rev brasil gastroenterol* 8 345, 1956) Subacute duodenal obstruction occurred in their patient The authors believe that strongyloidiasis could have caused a widespread inflammatory reaction of the mucosa of the second portion of the duodenum The adult female parasites, larvae, and eggs may invade the mucosa and submucosa, but this rarely occurs In addition, vascular or possibly nervous lesions could have been responsible for the spasm in this region The authors, therefore, believe that strongyloidiasis played an important role in the obstruction of the duodenum, which was the cause of death in their patient, and that the infection requires more accurate clinical and pathological studies for the correct interpretation of its etiological and pathogenic aspects

Esophageal Stricture—In the management of the esophageal stricture caused by swallowing lye, Dr Matos Barreto introduces one esophagoscope through the mouth and another through a gastric stoma as soon after the injury as possible Thoracotomy is performed, and the esophagus exposed The arch of the azygos vein may have to be cut between ligatures The exterior of the esophagus is made visible by means of a mirror used by the endoscopist who handles the retrograde instrument The upper and lower portions of the esophagus are brought into the same axis, and the distal ends of the two esophagoscopes are approximated as closely as possible A long cannula is introduced through the retrograde scope and advanced into the narrowed portion of the esophagus below the stricture The surgeon slides the esophagus over the cannula as far as possible A long threaded needle is introduced through the cannula and thrust through the constricted portion of the esophagus into the upper esophagoscope Threads brought out through a nostril and the gastric stoma are used as a guide to dilators Excellent results are reported

Megacolon and Megaesophagus—The pathogenesis of congenital megacolon is completely different from that of acquired megacolon, according to F Koberle (*Rev goiana med* 2 100, 1956) Dilations of hollow viscera may result from injury of the intramural plexuses by Trypanosoma cruzi The achalasia of the sphincter which may result from such a lesion is a secondary, not a determining, factor, since dilatations may be produced in segments of the digestive tract that have no sphincter The principal factor is in alteration of the motility of the organ due to the destruction of the nervous tissue of the muscular wall, leading, in the initial phase, to hypertrophy and hypertonia of the wall This phase progresses to the enlargement and complete atony of the organ Serial sections from 7 patients with megaesophagus and 14 with American trypanosomiasis gave evidence that megaesophagus is a manifestation of this disease Transfer of the parasites in the esophageal muscle layer leads, after rupture of the pseudocysts, to a granulomatous inflammation in the interior of the muscle layer and, due to lymphogenic spread, to destruction of the nervous plexus and lack of coordination of the peristaltic movements and achalasia of the sphincter This results in dilatation of the esophagus A similar mechanism produces megacolon and other similar processes in hollow viscera

FRANCE

Hormonal Treatment of Rheumatic Fever—Mozziconacci and Caramanian (*Semaine hôp Paris* 33 288, 1957) report the results of hormonal treatment of rheumatic endocarditis in 387 patients (207 with initial attacks) followed up for six months to six years These patients had been treated with doses of hormones ranging from 100 to 300 mg The dose had been increased when found to be inadequate, and treatment was continued until the sedimentation rate fell to less than 20 mm per hour The authors recommend that hormonal treatment be followed by treatment with aspirin in effective doses for 2 or 3 weeks With this treatment 75% of the patients with severe cardiac rheumatism had survived Those with moderate cardiac rheumatism had im

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The items in these letters are contributed by regular correspondents in the various foreign countries

proved by 29% and those with initial attacks by 50% Of those with no cardiac involvement, 96% had recovered without valvular sequelae These results were better than those in which smaller doses of hormones or aspirin alone were used

Aspirin Treatment of Rheumatic Fever —Mozziconacci and Manuel (*Semaine hôp Paris* 33 296, 1957) state that aspirin is effective in the treatment of rheumatic fever only if adequate doses are used Salicylate derivatives are absorbed into the blood rapidly, but a large proportion of the blood salicylate remains inactive because it is protein bound As the salicylate level rises, the salicylate clearance rate is increased, so that, when repeated doses are given, the result is not a gradual accumulation but a salicylemia 'en plateau' Aspirin undergoes a hydrolysis that gives it a delayed action This makes it possible to obtain high salicylate levels with doses smaller than those required when using other salicylates The treatment is effective when the salicylemia plateau approaches 30 to 35 mg per 100 cc When the level reaches 35 to 40 mg per 100 cc, there is evidence of poisoning The passing from an effective to a toxic level generally corresponds to the moment when the renal adaptation power fails Rapid salicylate clearance is reestablished as soon as the drug is withdrawn Alkalinization of the urine with sodium bicarbonate may double the renal clearance of the salicylate by blocking tubular reabsorption The action of aspirin on exacerbations of rheumatic fever compares favorably with that of cortisone if adequate doses are used, except that the decrease of the sedimentation rate is less rapid Aspirin is still the drug of choice if hormonal treatment is contraindicated

Psychic Complications in Children Treated with Hormones —Mozziconacci and co-workers (*Semaine hôp Paris* 33 308, 1957) observed 57 children treated with corticotropin and cortisone and found that these hormones rarely cause severe reactions but may result in disturbances in the appetite and sleep Euphoria is seen less often than in adults Depression, on the other hand, was a common reaction in children Next came anxiety and agitation, hypomanic episodes, manic excitation, and visual disorders In only two patients were severe disturbances observed One showed delusions of persecution and the other serious intellectual deterioration The authors concluded that, although hormonal treatments benefited patients with many somatic diseases, the advantages should be weighed against the risk and that such treatment should not be continued in patients with evident hypercorticism, marked psychic manifestations, or changes in the electroencephalogram

Prevention of Relapses in Rheumatic Fever —J Labesse and co-workers (*Semaine hôp Paris* 33 323, 1957) observed 377 children with rheumatic fever, of whom 56 9% had cardiac involvement They gave sulfadiazine, penicillin G orally, injections of benzathine penicillin G, and phenoxymethyl penicillin orally The per cent of relapses per year was 2 8 (17 patients) This per cent fell to 0 8 (5 patients) when only those patients subjected to an accurate prophylactic program were taken into account Comparatively, the per cent of relapses was 20 5 (56 patients) for the 167 children who interrupted the prophylactic regimen The development of tonsillitis due to reinfection with Streptococcus pyogenes was observed in 5 2% of the children under the prophylactic regimen and in 15 3% of those who had interrupted this program Three (10%) of the patients with tonsillitis who were treated by curative doses of antibiotics had relapses, and 31, (53%) of those not so treated had relapses

Persistence of Gonococcic Morbidity —P Durel (*Presse méd* 65 829, 1957) states that the incidence of gonococcic infections has not decreased in the last six or seven years in spite of the individual effectiveness of antibiotics The detection of infected women is not easy, but the use of treatment that reduces the risk of reinfection should be beneficial individually as well as socially This sort of protection may be obtained only by using long-acting penicillin The objection to this treatment on the grounds that it may conceal a syphilitic infection contracted at the same time is unjustified The author believes that the best treatment of gonorrhea in both women and men is a single injection of 1,200,000, or preferably 2,400,000, units of benzathine penicillin (with or without streptomycin) This form of penicillin, because it is long-acting, is likely to reduce the incidence of gonorrhea as well as that of syphilis

Metabolite Balance in Cardiac Surgery —G Dubourg and co-workers (*Presse méd* 65 845, 1957) in a series of dogs under general hypothermia undergoing direct vision intracardiac operations analyzed those metabolite imbalances that interfere with normal electric and mechanical regulation of the heart beat They stressed the necessity for preventive rather than corrective measures Hyperventilation, hyperoxygenation, and a neuroplegic premedicament are essential It is advisable to give the subject a gradual potassium overcharge in the preclamping period and an adequate supply of glucose and calcium during the declamping stage Ten of the 13 dogs on which this technique was used survived after performance of cardiotomy on the right

INDIA

Chronic Splenomegaly —A K Basu and co-workers (*Journal of the Indian Medical Association,* May 1, 1957) report that the cause of chronic splenomegaly in some patients cannot be determined even after detailed investigation In many of these patients cirrhosis of liver with ascites or other evidence of portal hypertension eventually develops The authors performed a splenectomy on many such patients Splenectomy was also performed on a few patients in whom the cause of the splenomegaly was known The preoperative investigations of all these patients included examination of blood and bone marrow, estimation of plasma proteins, liver function tests, and the taking of esophagograms and splenoportal venograms The portal venous pressure was determined at operation and a liver biopsy specimen taken In 39 of the authors series of 50 operative cases, no etiological factor was apparent In 32 patients who had a history of intermittent fever with enlargement of the spleen, the residual splenomegaly had increased even after the cessation of the bouts of fever Histological examination of these spleens did not show any specific lesion In 15 patients with chronic uncomplicated splenomegaly there was no evidence of hepatic cirrhosis or portal hypertension Splenectomy was performed because of continued ill-health and evidence of hypersplenia in some patients The results may be considered satisfactory as judged by the improvement in the general health and blood findings In the second group of 19 patients who had continued ill-health and evidence of hypersplenia as well as clinical evidence of cirrhosis and portal hypertension, splenectomy was also performed Results were satisfactory in 11 and fair in 3 There was one operative death In 10 patients, removal of the spleen caused regression of the portal hypertension In five patients who also had nodular hyperplasia of the liver, liver function studies showed improvement after operation in spite of the fact that jaundice developed In five patients, splenectomy was performed for extrahepatic obstruction of the portal venous system There was no ascites or liver dysfunction in these patients

Splenectomy was performed in two and was combined with splenorenal shunt in the remaining three Except for one patient who died after operation, all were improved In four patients with cirrhosis of liver but without significant splenomegaly, the spleen was removed because of portal hypertension and in order to exclude hypersplenia One patient died after temporary improvement, and one was free from symptoms four years after operation In two others, it was too early to evaluate the results In one patient with visceral leishmaniasis, response to specific treatment was satisfactory only after removal of the spleen, which was the main reservoir of the organisms One patient with Cooley s anemia showed improvement in blood findings only after splenectomy Taken as a whole, hematological improvement was significant in 34 patients, liver function showed improvement in 22, and evidence of portal hypertension regressed in 18

Acute Encephalitis —Web and Pereira (*Indian J Child Health* 6 5, 1957) state that acute encephalitis in children in South India was formerly always due to virus Other agents, however may also cause acute encephalitis The authors have therefore tried to lay down certain criteria for the diagnosis of viral encephalitis These are (1) definite onset with fever, (2) marked involvement of the central nervous system, with drowsiness or coma, (3) bacteriologically negative spinal fluid with a normal or elevated cell count and normal or slightly increased protein and sugar concentrations, and (4) negative history and findings for such conditions as measles and vaccinia Of 1,075 admissions in a period of 16 months, 39 patients satisfied these criteria, but various laboratory investigations on blood and electroencephalograms ruled out viral encephalitis in 10 Of the remaining 29, serologic studies for specific antibodies showed 18 of them to be Japanese B encephalitis, while specific antibodies to Japanese B, West Nile, Murray Valley, and Tamil Nad encephalitis viruses were not found in the remaining 11 Thus, in spite of definite diagnostic criteria the clinical diagnosis proved wrong in a fair number of patients

Industrial Medicine —At the fifth annual convention of the Society for the Study of Industrial Medicine in April, the chief minister stated that coordinated research on problems associated with industrial hygiene by all the agencies concerned would not only bring about industrial peace but would also help to raise industrial production The president of the society said that the introduction of the Employees' State Insurance Scheme had created an impression in the minds of some industrialists that it was no longer the responsibility of employers to provide a factory medical service Industrial medical service, however, plays a vital role in stepping up production The employees, employers, and government should join in forming an industrial health service Such a service presupposes an intensive postgraduate training course in industrial medicine and hygiene This course of study should include, among other subjects, industrial psychology, industrial hygiene and sanitation, factory first-aid service, and safety measures The main functions of the service should be preemployment examination, periodic examination of workers, preventive treatment, education and instruction in sanitary habits, and rehabilitation of the disabled

Employment State Insurance Scheme —Since the introduction of the Employment State Insurance Scheme in 1952, there has been a rapid extension of the scheme, with the result that it now covers 1,125,000 workers in 51 areas in 10 states This constitutes about half the population working in factories covered under the act Beneficiaries suffering from tuberculosis now get medical treatment for a period of 18 to 24 months from the time they have to leave employment Cash benefits are also granted for a further period of 18 weeks Artificial limbs are provided free of charge to insured persons who lose their limbs on the job Medical care, which originally consisted of only outpatient services, now includes specialist treatment, ancillary investigations, and hospitalization on the scale of one general bed for 800 employees, one bed for tuberculosis cases for 1,600 employees, and one bed for maternity cases for 500 insured women Wives of insured persons will be entitled to outpatient treatment and home obstetric care

Hydrocortisone in Tuberculous Meningitis —A F Golwalla and co-workers (*Indian Journal of Medical Sciences*, May, 1957) state that steroids have a definite place in the treatment of tuberculous meningitis In addition to the routine specific therapy, steroids, when given orally or intramuscularly, cause rapid improvement in the general condition, reduce the incidence of spinal or ventricular block, release tubercle bacilli from fibrinous exudate, thus exposing them to the action of antituberculous drugs, and reduce the death rate from this disease The authors gave hydrocortisone intrathecally to nine adults with tuberculous meningitis who had severe toxemia and increased intracranial tension Streptomycin and isoniazid were also given

The hydrocortisone was given in doses of 20 mg on alternate days for the first 10 days and then twice a week for five more injections Within a few days all patients showed marked improvement, and their eventual recovery was complete

Carcinoma of the Male Breast—M V Sirsat (*Indian Journal of Surgery*, April 1, 1957) reported 30 cases of carcinoma of the male breast seen in the period 1941 to 1955 In the same period, there were 1,596 cases of carcinoma of the female breast The age of the patient varied from 35 to 80 years About 35% of the patients came for treatment within six months after they first noticed a lump in the breast In more than half the presenting symptom was ulceration of the nipple associated with either a mass in the breast or retraction of the nipple The axillary lymph nodes were involved clinically in 20 patients, but histological examination showed metastases only in some of them The right breast was involved in 15 patients, the left in 14, and one had bilateral involvement Only one patient had gynecomastia preceding carcinoma The lesion showed little difference from that of female breast carcinoma, but papillary cystadenocarcinoma occurred in 20% of the patients, this per cent being an unusually high incidence for this variety of carcinoma

NORWAY

Centenary of the Leprosary in Bergen—The century-old leprosary in Bergen burned to the ground on Christmas Eve, 1853 On June 12, 1857, the new building admitted its first patient A century later, this building (the largest building in Norway) houses only 5 lepers, whereas more than 2,000 lepers have lived in it in the past In *Tidsskrift for den norske Lægeforening* for May 15, Dr R Melsom traces its history and that of D C Danielssen and Armauer Hansen, men who have made history in the field of leprosy Most of the lepers admitted to the hospital a century ago suffered from some skin disease, such as scabies, for which a bath, after the application of a tar ointment, was prescribed Thereafter a bath once or twice a week for every patient became the rule Occupational therapy was practiced early, the men being employed in making nets, carpentering, shoemaking, and working in the garden, while the women sewed, knitted, and spun Danielssen, one-time director, was a keen pathologist whose eagerness for postmortem examinations was frowned on by his prospective subjects His life was said to have been threatened on this score, but he continued performing autopsies and concluded that certain brown elements found in the tissue of lepers must be characteristic of the disease These elements are now known to be macroscopic cultures of Mycobacterium leprae When Virchow visited Bergen in 1859, and was shown these elements, he dismissed them as patches of fatty degeneration quite unconnected with leprosy It remained to Hansen to discover the unstained M leprae in 1873 In the following year, he reported his discovery to the medical society in Christiania (now Oslo) A little later, with the assistance of Weigert and Koch, Hansen succeeded in staining this bacillus His attempts to transfer the bacillus from a patient with the nodular form of leprosy to a patient with the smooth form of the disease proved abortive and led to legal proceedings against him, ending in his dismissal from his appointment as the hospital's chief He was, however, allowed to remain as Norway's chief leprosy medical officer till he died in 1912

Ullevaal Hospital as a Research Center—In an address given at the annual meeting of the Norwegian Council for Science and the Humanities, Carl Semb traced the evolution of the Oslo City Hospital, Ullevaal, as a research center with special facilities for experimental work (*Journal of the Oslo City Hospitals*, May, 1957) This hospital already has two research institutes, one of them, the University Institute for Respiratory Physiology, and the other, the University Institute for Experimental Medical Research The former is primarily concerned with studies of the lungs and the pulmonary circulation, with special reference to the advancement of major thoracic operations At this institute a new method for testing the total cardiopulmonary function was adopted, with continuous registration of the amount of total oxygen consumption and discharge of carbon dioxide during rest and exercise These and other tests are of value in the 400 or more pulmonary operations performed yearly at the hospital The Institute for Experimental Medical Research has been concerned with operations on the heart and blood vessels Trials have been carried out with an artificial heart-lung machine that permits of exclusion of the heart and lungs during operations on the heart Methods for direct measurements of the blood flow by the use of isotopes have been devised A new surgical technique has been developed in connection with partial renal resection, and 266 such resections have been performed at the hospital on human subjects without any operative deaths Work is progressing with the construction of an artificial kidney by which renal excretory function can be temporarily imitated in patients with transient renal failure Another comparatively new branch is the neurosurgical department The rapidly increasing demands of neurosurgery have already necessitated plans for a new wing to the surgical block to provide room for 70 beds for neurosurgical patients and for new operating rooms

Mass Radiography, Tuberculin Testing, and BCG Vaccination—Since 1943 there has been a great extension of mass radiography with tuberculin testing and BCG vaccination throughout Norway By 1952, seven mass radiography teams, five on shore and two at sea, were at work, examining everyone over the age of 14 years Since 1949, mass radiography has been combined with BCG vaccination of the persons found to be tuberculin negative The Ministry of Health's tuberculosis department has an enormous task in coordinating this service, which requires not only 24 radiologists and specialists in the diseases of the lungs but also the aid of health officers throughout the country This is why the latest report is for 1952 In that year, 308,153 persons underwent mass radiography. In 12,648 cases supplementary examinations were necessary. Changes in the lungs and pleurae were found about 10% more frequently in men than in women, whereas cardiovascular changes in all the age groups were more common among women (22 per 1,000) than among men (13.9 per 1,000). In 417, or 14.5 per 10,000, persons undergoing mass radiography, destructive lesions of pulmonary tuberculosis were found. Special interest attaches to the 30,534 persons who were known to have undergone BCG vaccination earlier. The morbid findings in mass radiography testing were comparatively rare in this group, the difference in favor of the vaccinated growing with the age of the persons examined. While only 16.3 per 1,000 BCG-vaccinated males who underwent radiography were referred to a supplementary examination because of radiographic findings, 43.1 per 1,000 of all the persons radiographically examined were so referred.

UNITED KINGDOM

Duodenal Ulcer Treated by Combined Gastroenterostomy and Vagotomy.—The treatment of 197 duodenal ulcers by vagotomy and posterior gastrojejunostomy is described by Hindmarsh (*Lancet* 1:1113, 1957). The most troublesome side-effects of vagotomy (flatulence, vomiting, and diarrhea) are avoided if adequate drainage is provided by a posterior jejunostomy creating a large stoma extending from the lesser to the greater curvature at the junction of the body with the antrum. Adequate drainage of the latter is essential. A complication of the operation is gastric stasis, which may last several days. This is avoided by discontinuing aspiration as soon as possible, usually within 24 hours after the operation, and the prompt feeding of semisolids by mouth by the third postoperative day. The giving of solid food stimulates gastric activity and promotes restoration of normal intestinal function. Hindmarsh has been treating duodenal ulcer by this method for eight years, and reports a satisfactory result in 98% of the patients so treated. The passage of time showed no reduction in the percentage of satisfactory results.

Radiobiology Unit.—In 1954, the British Empire Cancer Campaign received a donation of $700,000 to equip laboratories for the study of roentgen rays and other ionizing radiations on living tissues. These laboratories have now been opened at the Mount Vernon Hospital, London. Fundamental problems on the action of radiation on living cells will be studied—in particular, the early stages of irradiation damage preceding the microscopic changes. It is desired to study these early changes with a view to controlling the nature and extent of irradiation damage. One method used is to expose the cell to the total amount of radiation in the shortest possible time and to observe the chemical changes occurring in the cell or its components before and after exposure.

The unit has been specially designed for a 200,000-volt x-ray machine, which is housed in rooms with thick concrete walls, and an electron-pulse generator. Both these machines and the instruments measuring changes in the cells are operated from a control bay between them. The electron-pulse generator emits bursts of electrons at such a high intensity that cells in the path of the beam can be exposed to any desired amount of irradiation, up to a limit exceeding anything previously attained, in a single pulse lasting only about two-millionths of a second. Special methods will be used to examine the changes in the cell during and after exposure by means of flashes of light lasting only a few millionths of a second. These studies bear closely on the use of oxygen to increase the power of x-rays in the treatment of cancer, since oxygen is thought to augment radiation damage by entering into chemical reactions of extremely short duration. The Mount Vernon Hospital itself, which treats about 1,150 cancer patients a year, has an exceptionally well-equipped radiotherapy department fitted with a 4-million-volt x-ray machine and a cobalt-60 theratron.

Frozen-Tumor Bank.—At the Central Laboratories of the Imperial Cancer Research Fund, Dr. James Craigie has established a bank of transplantable tumors in the frozen state. This frozen-tumor bank is thought to be the only one of its kind and is intended to serve as a source of tumor tissue for research workers. The tumors are frozen for long-term storage. About 50 types of transplantable tumors are in storage, including strain-specific and non-strain-specific mouse tumors, a Jensen rat sarcoma, a Walker rat tumor, a Brown-Pearce rabbit tumor, radium-induced guinea pig tumors, and several fowl tumors. The variety of strain-specific mouse tumors is limited by the number of colonies of different strains of mice that are maintained in the laboratories, but it is hoped to add to them. Some types of tumor not in the bank are being studied in the fund's laboratories at Mill Hill, London.

Death Associated with Steroid-Hormone Therapy.—Allanby reported 18 deaths associated with steroid hormone therapy (*Lancet* 1:1104, 1957). In 11 cases, steroid therapy was considered directly responsible for death and probably hastened death in 3 others. Infection caused at least six, and probably seven, of the deaths. This was attributed to the fact that hormone therapy suppressed or masked the symptoms and signs of infection. Gastrointestinal hemorrhage and perforation were each responsible for three deaths. Other causes of death were adrenal failure and rupture of the aorta, but only in the case of adrenal failure was steroid therapy suspected as a cause of death. Most treatments have their risks and it would be a great pity if the dangers of steroid therapy were overemphasized. It is unwise, however, to embark on steroid therapy without adequate means for careful and regular supervision of the patient and unless real benefit can be anticipated.

Radiation and Leukemia.—In 1955, the Medical Research Council appointed a committee to examine the hazards of nuclear and allied radiation. W. M. Court-Brown and Richard Doll were asked to undertake an extensive investigation of leukemia and aplastic anemia occurring in patients who had ankylosing spondylitis and had undergone treatment by irradiation Their report has now been published (Leukaemia and Aplastic Anaemia in Patients Irradiated for Ankylosing Spondylitis, M R C Special Report, Series No 295, H M S O, 1957) The records of 13,352 patients from 81 radiotherapy centers were investigated and the patients carefully followed up Seventy-two of the patients were found to have ankylosing spondylitis, aplastic anemia, or myelofibrosis, 49 of the records were among those taken from the hospital records, and 23 were from other sources From national vital statistics the numbers of deaths that would have been expected in the 13,352 cases of ankylosing spondylitis were 2 9 for leukemia and 0 3 for aplastic anemia Actually 28 deaths were reported as due to the former and 12 to the latter disease The mortality from leukemia among patients with ankylosing spondylitis treated by irradiation is thus about 10 times that of the population at large A possible explanation is that patients with ankylosing spondylitis are more likely to get leukemia than are healthy persons, irrespective of the method of treatment Against this argument are the following observations The distribution of the different cell types of leukemia in patients who have undergone treatment by irradiation is not the same as in untreated patients, in whom the incidence of lymphatic leukemia is higher There is also a relation between the dosage of irradiation and the incidence of leukemia This was considered by the authors to be strong evidence that irradiation is a cause of leukemia

In spite of the careful analysis by Court-Brown and Doll, the nature of the relationship between radiation dosage and leukemia is not clearly defined, so that it is not possible to determine a maximum allowable dose of radiation These investigators believe that there is no threshold dosage—a view based on the observation that the incidence increases with the dosage, except at the highest level This is analogous to the induction of gene mutations by irradiation Discussing the occurrence of leukemia among the Hiroshima survivors, the authors consider that the incidence of the disease is related to dosage of radiation in a linear manner They admit, however, that much more work must be done before the true dose-response relationship between irradiation and leukemia is ascertained

Tuberculosis in Lodging Houses—In London, accommodation for the solitary male worker receiving a low wage varies from well-organized hostels to the worst type of flophouse The best working-men's hostels are Rowton Houses, which, with the Salvation Army hostels, have 8,750 beds in London Other lodging houses bring the number up to about 13,000 Dr Kenneth Marsh, suspecting that lodging houses are reservoirs of tuberculosis, cooperated with the directors of local mass miniature radiography units in surveying the inmates In five surveys, 1,200 men from lodging houses were x-rayed, and 47 were found with active tuberculosis With 21 cases already known, this was an incidence of 56 cases per 1,000 persons Of a further 211 men referred for examination from these houses, 47 were found needing treatment, and 50 others were already known to be tuberculous In another group of 1,125 men sleeping in lodging houses, 26% of those between the ages of 35 and 44, 53% between the ages of 45 and 54, and 66 6% between the ages of 55 and 64 years showed radiographic evidence of tuberculosis The incidence of tuberculosis found by mass radiography in the population at large in London was 5 8 per 1,000 in the 25-to-44-year age group and 11 2 in the 45-to-64-year age group

In another survey, Marsh found eight men needing treatment for tuberculosis in a house where only 47 people were examined The difficulty is to get the inmates of lodging houses to submit to examination Marsh recommends that every person admitted to prison be x-rayed This large reservoir of tuberculosis can be dealt with only by the cooperation of the medical profession and the various departments in local and national government that are concerned with health and welfare

Congested Curriculum—The British General Medical Council published a review of the medical curriculum and the *British Medical Journal* of June 8 has commented on this review After passing preliminary examinations in general education, physics, chemistry, and biology, the medical student must still face a minimum period of professional study of five years The council considered the possibility of reducing this minimum period, but decided that the time was not opportune for this It encouraged the extension of interdepartmental teaching throughout the whole period of professional study The student is no longer required to dissect the whole body In the section devoted to medicine, there is great stress on preventive medicine and on providing the student an opportunity to learn something of the work of the general practitioner Although the student has still to spend not less than two months in residence while receiving clinical instruction in obstetrics, much of the detail formerly required has been dropped, he has to conduct only an adequate number of deliveries compared with the not less than 12 required in the old recommendation (1947) He should be given ample opportunity to attend clinicopathological conferences and should be acquainted with the principles governing the design and interpretation of clinical trials As to examinations the council now specifies 10 subjects, 5 less than 10 years ago, and has refrained from designating subjects in which separate examinations should be held

"Smoking-Cure" Pills—Mr H H Bagnall, Birmingham city analyst, says of pills guaranteed to cure the smoking habit forever "If willpower and resolution are not strong enough to break off the habit, I doubt very much if such tablets would do so" He found that the pills consisted of 0 4 Gm of iron sulfate coated with sugar and colored He concluded that there was no obvious reason why swallowing them by the dozen should have any effect on the smoking habit If the pills are sucked, however, the unpleasant taste caused by the combination of smoke and iron sulfate might act as a deterrent, but too great indulgence in the pills should be avoided, as constipation and irritation of the stomach might follow

CORRESPONDENCE

SKIN LESIONS

To the Editor —I read with interest a recent editorial by A J Lehman, 'The Cosmetic Problem" (*J A M A* 164 416 [May 25] 1957) A desire was expressed for basic study to help solve the issue It was considered more than a coincidence that adolescent pimples are also being referred to as the acne problem I wonder if these two problems have something in common Bad complexions are burdened with advice and loads of directions for treatment, but, in spite of knowing so much about what to do, some 50% of youthful males and females have pimply faces Adding a disconcerting note is the fact that teen-agers from the homes of physicians contribute more than their share to the incidence

It seems that, in the rush to do something, the psychology of adolescense has been overlooked As sure as puberty comes about, there occurs a time when both sexes seek to improve and adorn each and every physical attribute to the highest state of perfection Hair styling is practiced with much fervor What parent has not noticed the lengthening intervals spent in the bathroom, the unaccounted-for delay in being ready for school, sudden attention to cleanliness, and furtive glances at mirrors to make sure that each beauty feature is the way it should be It is at this stage of development that there starts on the maturing skin a concerted effort to better it From every bar and jar, a full measure of beauty is wanted There is present an urgency to try to confirm the most outlandish cosmetic advertising

About this same time, youngsters come out of the bathroom with the face reddened and irritated, and a few wheals point to the squeezing practice At once, there is offered endless advice Everybody knows what to do, and, as likely as not, the youngster is accused of being dirty The parent or relative may take a hand in the washing A brush may be purchased As the irritation becomes more complex, relief is sought from cosmetics and medicaments Finally, putting things on and taking them off becomes a ritual whose outcome is erythematous acne, noted for bleeding points, oiliness, and massed comedones These teen-agers with their faces like balls of fire are now the end-stage of always doing something They epitomize too much advice, care, and treatment

Several recent experiences point to the importance of psychological factors in the course of acne

A young executive, aged 22, was seen for a dermatitis on the leg The residual of a severe acne was noticed All during high school and college, the acne had remained severe and acute Treatments were unsuccessful His present position demanded the most of him He married, they decided to help build their home, with the result that every spare moment was occupied Casually, he remarked, "You know I didn't have time to look after my skin," and now his facial expression brightened, "Up to this time, it never dawned on me that that is why it got better"

A white male, aged 24, presented a grade 4 acne with extensive keloid formation, especially on the chest It was of eight years' duration A bentonite lotion was prescribed This was to be patted on the affected areas at night and rinsed off with warm water in the morning Soap was forbidden as well as wash cloths The skin was to be patted dry, not rubbed In addition, he was informed that all manipulative acts must cease if he wanted to get well At the end of three weeks, an unbelievable change had occurred The face had lost its greasy redness, and there were no active lesions Breaking habits is difficult, and this patient was asked for the secret He responded with two reasons When he stopped using soap and wash cloths, the irritation of the skin lessened so he did not have to touch or press it, and he was getting married in three months and wanted his skin to look nice The marriage impulse in this patient transcended all other motives and habits

A housewife, aged 24, with two children was seen for a pustular acne of six years' duration, affecting the chin and sides of the face This had become acute the previous three months During a period of nine weeks, several treatment procedures were outlined There was no improvement, and every visit she asked, "Can't you do something more for me?" Finally, in desperation, she was asked what she would like to do To my surprise, she wanted a typewriter The husband was called from the waiting room, and he said he would buy two typewriters if it would help I insisted that she let me see her first four lessons These were brought over on the next visit, and during the following two weeks all acute acne lesions had disappeared Restless fingers manipulated the typewriter instead of the face

If basic study is directed at the cosmetic problem, the faces of our teen-agers will be less irritated This achievement alone will lessen the acne problem

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TREATMENT FOR DIABETES MELLITUS

To the Editor —It has been two years since the introduction of tolbutamide (Orinase) in the United States Many of us have had excellent results from its use All observers agree that it is effective in the obese, elderly patient with mild diabetes and that it is a valuable contribution in the treatment of diabetes mellitus, points which were well covered in the excellent editorial that appeared in the June 1, 1957, issue of The Journal However, I feel that a completely incorrect impression that the orally given hypoglycemic agents are insulin substitutes is created by such articles as "Clinical Use of Tolbutamide (Orinase) in Office and Home Care of Diabetics" in the June 8, 1957, issue of The Journal I must express my objection especially to the statement, 'No longer do their [diabetics'] lives depend upon a refrigerator's proximity—a liberation of marked psychological importance." Furthermore, 45 cases is a grossly inadequate sample on which to compute the expected percentage of diabetics needing insulin.

It is important to bear in mind that in 50% of cases, the diabetes can be controlled by diet alone. Probably the condition of at least 80% of the obese, elderly patients with mild diabetes could be controlled by diet alone. Even in these cases insulin is the drug to be used rather than tolbutamide when infection or acute stress develops.

Orally given hypoglycemic agents are unpredictable since it is only after trial and error that the suitable reactor can be found. They cannot be relied on solely, since under stress insulin is required. Their effectiveness is often short-lived, requiring later recourse to insulin. Side-reactions such as nausea and vomiting, abdominal pain, and vertigo are common enough not to be overlooked.

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LAW DEPARTMENT

MEDICOLEGAL ABSTRACTS

Osteopathy: Injunction to Restrain Enforcement of Revocation Order.—This was an action by the petitioner, an osteopath, to restrain the State Board of Health of Kentucky from enforcing an order revoking the petitioner's license to practice osteopathy. From a judgment denying relief sought, the petitioner appealed to the Court of Appeals of Kentucky.

The petitioner was admitted to the practice of osteopathy in Missouri in 1922 and, in 1926, through reciprocity, was licensed to pursue the same profession in Kentucky. He admitted that he did not hold the degree of Doctor of Medicine, that he had no right to use the professional title, "Doctor of Medicine," or its abbreviation, "M.D.," and that he was not entitled to engage in the general practice of medicine and surgery. In the latter part of 1950, the state board of health filed certain charges against the petitioner, which, briefly stated, were using medicines of doubtful value, imposing excessive charges, making unjustified promises of cure and deceiving patients about their physical conditions, following unorthodox diagnostic procedures, employing scare tactics, and failing to provide for adequate relief of pain. Among other grounds for reversal, the petitioner contended that the evidence did not sustain the board's action.

The Court of Appeals said that uncontroverted testimony was developed to the effect that the petitioner had paid for a listing in the Louisville telephone directory as "Doctor of Medicine," although he did not have this professional status, and had in 1944 and several times thereafter been warned by the board to have the listing removed. This warning he ignored until this proceeding was begun. He also gave the "Koch shots" for cancer treatments, with knowledge that after investigation the American Medical Association had branded the use of such a substance valueless therapeutically. It was brought out that the petitioner charged $100 to $150 for each "Koch shot," while the cost of each shot to him was only $25. He gave conflicting testimony as to what the services for each charge involved. It was stated that the petitioner refused to relieve pain on two occasions and employed methods that terrorized on another occasion. These last two assertions were denied by him. There was proof that the petitioner claimed in several instances that "Koch shots" would cure cancer. He refuted this testimony in part. The testimony introduced before the board concerned patients whose conditions were diagnosed and treated by the petitioner as cases of cancer. It is common knowledge that medical science has as yet discovered no drug that will cure this disease in its advanced stage. Despite this fact, it will be recalled, continued the court, that the petitioner gave assurance, according to the testimony of Everett Rucker, that he could heal the latter's wife who was suffering from cancer in an aggravated form. He gave her three "Koch shots" at a cost of $100 per shot. Her illness was so advanced it should have been apparent to petitioner that he could do nothing to save her life. It has been held that the acceptance of money upon the promise or representation of being able to cure a disease regarded by the concensus of medical opinion as incurable constitutes such unprofessional and dishonorable conduct as would warrant a license revocation. Considering the evidence that was not controverted and that the board could have believed, said the Court of Appeals, it could only with difficulty be held that the board's order was not supported by any substantial evidence. Nor can it be said its decision was not an honest and impartial one.

The petitioner also contended that he had not been accorded a fair and impartial trial. One of his arguments was that, over a year after the hearing, the counsel for the board filed with it a copy of an opinion and order of the Federal Trade Commission in the matter of Koch Laboratories, Inc. and others, as respondents. Briefly stated, this opinion held that the "Koch shots" in their various compounds have no therapeutic value in the treatment of cancer or tuberculosis nor any beneficial effects as healing drugs and, furthermore, that they have adverse effects on some persons when employed as a curative agent, and the order directed the respondents to cease disseminating these preparations by any means through the channels of commerce. Our answer to that, said the Court of Appeals, is that the opinion was a finding of law and not one of fact, hence the board could take judicial notice of it. Especially is this true since the Federal Trade Commission opinion was later affirmed by the United States Court of Appeals for the Sixth Circuit.

The petitioner's other grounds for reversal were also overruled, and the judgment of the trial court upholding the board's revocation order was accordingly affirmed. *Bandeen v. Howard, 299 S.W. (2d) 249 (Ky., 1957).*

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Hepatic Function in Tuberculous Diabetics Treated with Carbutamide G L Luisetti, G Abbate and A Corsitto Minerva med 48 538-543 (Feb 17) 1957 (In Italian) [Turin, Italy]

Carbutamide was given by mouth to 15 diabetic patients with pulmonary tuberculosis as a substitute for insulin The tuberculosis was severe in some patients and very severe in others Impaired liver function was present in almost all patients The diabetes was severe in only 1 patient, and carbutamide did not benefit this patient The drug benefited the rest of the patients Two patients were treated with carbutamide alone Insulin was discontinued successfully as soon as carbutamide therapy was started in 7 patients, and their glucose metabolism became normal Insulin was discontinued 2 or 3 weeks after treatment with carbutamide was started in 3 patients, and favorable results were obtained Insulin had to be continued for 6 months in 2 patients Two patients with very severe tuberculosis and severe diabetes already had marked functional disturbance of the liver Treatment with carbutamide caused improvement of the metabolic syndrome, but the hepatic dysfunction became worse The authors believe that patients with hepatic dysfunction should not take more than 2 5 Gm of carbutamide per day Treatment with this drug had no effect on the liver function of the remaining 13 patients

Management of Shock with Corticotropin (ACTH) in Myocardial Infarction V-M Anttonen and A Rautakoski Ann med int Fenniae 45 183-194 (No 4) 1956 (In English) [Helsinki]

The authors present observations on 159 patients with myocardial infarction in whom the diagnosis was based on generally accepted clinical and laboratory criteria, and in 153 patients it could be confirmed by electrocardiographic changes Six patients died soon after admission, and, therefore electrocardiographic examinations could not be performed All patients received anticoagulant therapy in the form of heparin, dicumarol, or marcumar Ninety-five (60%) of the patients were admitted to the hospital within 24 hours of the attack Clinical symptoms of shock were present in 79 patients (about 50%) at the time of admission to the hospital Corticotropin was given to 86 patients, 60 of whom showed signs of shock, whereas such signs were present in only 19 of the 73 patients who served as controls

Corticotropin was administered intramuscularly in daily doses of 10 to 80 units, depending on the severity of the symptoms All but 10 of the 86 patients were given a preparation that had a prolonged effect Seventeen of the 86 patients treated with corticotropin died, that is, 14 of the 60 who were in shock and 3 of the 26 who did not have clear symptoms of shock There were 18 deaths among the 73 patients in the control series, that is, 11 of 19 patients who had signs of shock and 7 of 54 without signs of shock died Treatment with corticotropin, however, did not save a single patient in profound shock (blood pressure, zero), but it seemed to be especially effective among those with moderately severe shock It may also prove helpful in the prevention of shock In the doses administered (10 to 80 units daily), corticotropin did not increase the signs of cardiac decompensation or the incidence of thromboembolic complications

The Treatment of Hæmochromatosis with Particular Reference to the Removal of Iron from the Body by Repeated Venesection P M McAllen, N F Coghill and M Lubran Quart J Med 26 251-276 (April) 1957 [Oxford, England]

Hemochromatosis is characterized by the deposition throughout the body of iron in the form of hemosiderin The authors are concerned with the idiopathic form of hemochromatosis, not with exogenous or transfusion hemochromatosis, which results from multiple blood transfusions for chronic anemia The heaviest concentrations of iron occur in the liver and pancreas Next to these, the organs most severely affected are usually the thyroid, anterior pituitary, and heart Fibrosis is associated with these iron deposits, invariably in the liver and frequently in the pancreas, thyroid, and heart The main clinical effects of the disease are cirrhosis of the liver, diabetes mellitus, hypogonadism, and congestive cardiac failure Asthenia and pigmentation of the skin are also common manifestations Once symptoms have become severe, progressive deterioration commonly occurs Death usually results within a few years from damage to the liver, pancreas, or heart, or it may result from intercurrent infection, such as pneumonia or tuberculosis The authors present observations on 6 men, ranging in age from 46 to 58 years, whom they treated for hemochromatosis The diagnosis was established in all by liver biopsy—in 4 by needle puncture and in 2 at laparotomy The hematological state and the function of organs mainly affected (liver, pancreas, thyroid, and heart) were studied before treatment commenced A diet containing 100 Gm of protein and

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The place of publication of the periodicals appears in brackets preceding each abstract

Periodicals on file in the Library of the American Medical Association may be borrowed by members of the Association or its student organization and by individuals in continental United States or Canada who subscribe to its scientific periodicals Requests for periodicals should be addressed Library, American Medical Association Periodical files cover 1948 to date only, and no photoduplication services are available No charge is made to members but the fee for others is 15 cents in stamps for each item Only three periodicals may be borrowed at one time and they must not be kept longer than five days Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order Reprints as a rule are the property of authors and can be obtained for permanent possession only from them about 7 mg of iron was taken daily by all patients No vitamin supplements were prescribed Insulin was given for diabetes in 2 of the patients and thyroxine for the hypothyroidism in 1 patient Congestive cardiac failure in 1 patient was treated by orthodox methods Testosterone therapy was refused by the patients with hypogonadism A phosphate mixture (potassium dihydrogen phosphate and disodium hydrogen phosphate) was given before meals, in view of the theoretical possibility that it could diminish iron absorption, and calcium lactate or gluconate was given between meals to combat any associated interference with calcium absorption, particularly since osteoporosis may occur in hemochromatosis and was already present in 2 patients

Removal of 500 ml of blood by venesection every week was planned for each patient Direct venepuncture in the antecubital fossa or forearm was performed with a standard blood-taking set, local anesthesia being required by only 3 patients The veins were used regularly for 2 to 4 years without difficulty The blood was removed without reinfusion of separated plasma Throughout the course of treatment, the patients carried on with their normal work and attended hospital for venesection during off-work periods In 2 patients, the weekly venesection had to be reduced to 350 ml because of tiredness in 1 patient and faintness in another Otherwise large amounts of blood were removed without ill effect, and, eventually, a state of anemia was produced By this time the excessive iron stores in the body were almost exhausted, as demonstrated by liver biopsy Relief of symptoms was obtained in all patients, and an improvement in the functions of the liver thyroid, and heart occurred in those in whom these organs were involved Insulin requirements decreased in 1 of the 2 diabetic patients After the iron stores in the body had been reduced, it was found that maintenance venesection of 1 to 2 liters per year was required in order to combat reaccumulation of iron The authors believe that the prognosis in hemochromatosis is likely to be much improved by venesection and that by maintenance venesection the progress of the disease may be arrested

Medical Management of Peptic Ulcer C A Flood Am J Gastroenterol 27 457-470 (May) 1957 [New York]

In the long-term management of patients with gastric ulcer, the possible development of carcinoma makes continuous vigilance necessary In a group of 101 patients with benign ulcer, followed for a period of 5 to 6 years, 5 patients developed gastric carcinoma from 3 to 19 years later A series of 103 patients with benign and malignant antral disease, seen during the period 1947 to 1950, were recently resurveyed Radiologic examinations had revealed evidence of a diseased antrum After gastroscopy, 73 patients were considered to have benign disease of the antrum Carcinoma that involved the antrum was found in 30 patients Among the 29 patients in whom operation was performed, gastric resection was done in 23 Follow-up revealed that 7 of these patients survived 5 or more years and that 6 were alive at follow-up The tumors were of either the superficial spreading or the fungating variety An aggressive surgical approach is recommended, whenever there is continuing reasonable doubt as to the nature of the lesion

Oral Maintenance Treatment of Pernicious Anæmia J F Adams Scottish M J 2 151-153 (April) 1957 [Glasgow]

Assessment of the value of oral treatment of pernicious anemia with commercial preparations of vitamin B_{12} and intrinsic factor seemed desirable, because of differences of opinion about the value of such substances in maintenance therapy A trial of commercial vitamin B_{12}-intrinsic factor compound in 73 patients with Addisonian pernicious anemia over periods of 16 to 36 months is reported On the basis of red blood cell counts and serum vitamin B_{12} levels, at a dosage level of 1 tablet per day (70 patients) and 2 tablets per day (3 patients) therapy was unsatisfactory in 35 patients including the 2 patients on the larger dosage It is concluded that such preparations are unsuitable for maintenance treatment of pernicious anemia

Evaluation of the Medical (Conservative) Treatment for Peripheral Vascular Disorders A Survey of 1000 Treated Cases Occurring in a Series of 2300 Consecutive Records of Patients with Circulatory Disturbances D W Kramer, P K Perlstein and A De Medeiros Angiology 8 129-144 (April) 1957 [New York]

A survey of 2 300 case records, giving a total of 1000 treated patients with various peripheral vascular disorders, was studied, and the effects of therapy were evaluated Pavex mecholyl iontophoresis, intermittent venous compression and the Sanders bed were used among the physical medicine procedures used during the last 25 years to improve the circulation The vasodilating drugs had been developed to induce a more definite dilatation of the vessels, and the therapeutic application of anticoagulants had been recognized Arteriosclerosis obliterans, diabetic atheromatosis and arterial thrombosis were the conditions most commonly met among the arterial disorders The incidence of gangrene in patients with thrombosis, excluding thromboangiitis obliterans and diabetes, was minimal Thrombophlebitis was prevalent in patients with venous disorders, their number seems to be increasing Embolectomy was performed in patients in whom embolic occlusion was detected early enough, the results were very satisfactory Some of the patients underwent sympathectomy

The results of treatment were good in 381 (54 9%) of the 1000 patients and moderate in 259 (37 4%), there were 53 (7 7%) failures Good results were obtained in 254 patients with venous disorders (76 1%), 73 (21 8%) showed a moderate improvement, and 7 (2 1%) were failures Some patients with common changes in the abdominal aorta were included in this series Under treatment, the patients were able to continue their activities and lived for 5 to 10 years in comfort Further advances in biochemistry and the study of hormones eventually may lead to progress in the treatment of thrombosis and be helpful in inducing a regression of this pathological condition

Gastric Ulcer Evaluation of Methods of Treatment R J Bolt, W S Wilson and H M Pollard Univ Michigan M Bull 23 126-134 (April) 1957 [Ann Arbor]

A study was made at the University of Michigan Hospital for the purpose of evaluating the accuracy of diagnosis in cases of benign gastric ulcer, the results of surgical and medical treatment over a 5-to-10-year period, and the incidence of development of carcinoma in these cases over a similar period The series included 227 cases of gastric ulcer, 189 benign and 38 malignant The follow-up study included 150 of the 227 cases It was found that, when all available procedures indicated a benign lesion, the diagnostic error was 2 8% When x-ray and gastroscopic examinations gave conflicting evidence, about 25% of the lesions proved to be malignant When both procedures indicated malignancy, about 50% of such lesions actually were malignant The follow-up study showed that surgical treatment gave better results in general than did medical treatment in the cases of benign gastric ulcer Although 8 patients eventually died of carcinoma, in no case was the lesion associated with the gastric ulcer for which the patient had been treated

The study suggests the following conclusions 1 In the differential diagnosis of benign and malignant gastric ulcer, the diagnostic error can be kept below the probable surgical mortality rate if all diagnostic techniques are used and the patients are kept under observation 2 When results of diagnostic tests conflict, laparotomy and subtotal resection are advisable Operation is indicated also in all cases of ulcer of the greater curvature of the stomach and in any case in which the lesion continues to cause symptoms or fails to diminish in size after 4 to 6 weeks 3 A histamine-fast anacidity may be considered diagnostic of malignant gastric ulcer 4 Since malignant change rarely occurs in a benign gastric ulcer and since surgical treatment carries the risk of fatal operative complications, conservative medical treatment is indicated in many cases of benign gastric ulcer

Six Years' Survival in Severe Systemic Lupus Erythematosus An Analysis of 12 Cases J R Haserick A M A Arch Dermat 75 706-714 (May) 1957 [Chicago]

The author reports on 12 patients with severe systemic lupus erythematosus who lived 6 or more years after acute episodes Of the 12 patients, 11 received steroid therapy in 1 or more forms In 5 patients, steroid therapy was gradually discontinued and its resumption was not necessary Two patients did not require cortisone or corticotropin for 2 years, then they relapsed, and hormone treatment was resumed The most striking therapeutic response was noted in 2 patients who were given combined treatment with steroids and nitrogen mustard, the latter drug in 2 courses A severe leukopenia developed in 1 patient 10 days after the second course of nitrogen mustard Associated with the drop in leukocytes and other manifestations of impending agranulocytosis, results of the L E test changed from positive to negative It remained negative for 6 years, and the remission was complete except for a persistently high sedimentation rate Osteoporosis was a serious complication attributed to prolonged steroid therapy in 1 patient who had 2 compression fractures Symptomatic relief was obtained from administration of testosterone cyclopentylpropionate for several months Antimalarial drugs, such as quinacrine hydrochloride and chloroquine phosphate, may reduce the amount of steroids required and may be effective agents against photosensitivity Prednisone and prednisolone have been of unquestioned value They may be used as substitutes for cortisone or hydrocortisone, but the effect of their prolonged use is yet to be evaluated

The clinical remissions noted in these patients were stable enough to enable them to tolerate dental extractions, emergency major abdominal and chest operations, fracture reductions, pregnancies, and repeated exposures to the sun Pregnancy, while not recommended because of the additional technical burdens, should be permitted to go to term The L E tests, previously positive, became negative in all patients, though only temporarily in some, and the serum protein electrophoretic patterns became normal in some patients These improvements do not necessarily indicate a permanent remission Occasionally proteinuria and increased casts and erythrocytes in the urinary sediment may disappear during a prolonged remission With steroid therapy, the instability of the disease can be controlled Such treatment is indicated in systemic lupus erythematosus for as long as control of the disease is necessary and until a natural remission occurs It is not indicated in mild forms of systemic lupus erythematosus Stable remissions may occur, but the occurrence of true 'cures" is doubtful in this disease

Clinical Features of Polyarteritis Nodosa with Lung Involvement G A Rose Brit J Tuberc 51 113 122 (April) 1957 [London]

Until about 15 years ago, periarteritis nodosa remained largely a pathological curiosity, but, at present, about half the diagnoses are made clinically, and the disease is no longer a rarity Its early recognition has become important since the introduction of cortisone and corticotropin This paper is concerned chiefly with the pulmonary manifestations of periarteritis nodosa, since these are unfamiliar and often lead to errors in diagnosis This survey was based on a total of 111 proved cases of periarteritis nodosa There was evidence of lung involvement in 33% of the patients The respiratory illness in these patients generally preceded evidence of periarteritis in other organs and took the form of pneumonia, bronchitis, or asthma Radiologically, the appearances of the lesions were varied, and no specific patterns could be recognized A diagnosis of periarteritis nodosa should be considered whenever a patient with an atypical pulmonary disease has unexplained lesions in other organs, especially if there is also eosinophilia or asthma

Pathological proof of the diagnosis should be obtained before starting cortisone treatment, for, if the latter is to be effective, it may require prolonged and heavy dosage Deaths attributable to cortisone have occurred in patients treated on a mistaken clinical diagnosis of periarteritis nodosa when the patient required different therapy Fortunately, it is possible in most cases to obtain proof of the diagnosis by biopsy The highest proportion of success is achieved by biopsy of skin lesions These, however, must be recent and nonulcerated, for, on the one hand, healed arterial lesions may be unrecognizable and, on the other, ulceration and secondary infection make it impossible to determine whether vascular changes are primary or secondary In the absence of suitable skin lesions, "blind" muscle biopsy probably offers about a 50% chance of positive findings, equivocal findings being much less common than in skin biopsy The most suitable sites are probably the pectoral or calf regions The volume of muscle removed must be sufficient to contain several small arteries

Early Diagnosis in Cancer Detection Clinics Yields 70% Cure Rate C B Hess Pennsylvania M J 60 611-612 (May) 1957 [Harrisburg]

Of 108 persons with cancer found among 14,529 persons who had 38,023 examinations at the Philadelphia Cancer Detection Clinic, 30,912 of which were performed on women and 7,111 on men, 6-month checkups were carried out in 64, and checkups were at 12-month or longer intervals in the remaining 44 Of the 108 cases of cancer 15 were in men and 93 in women In all, cancer was discovered or suspected in the clinic and subsequently confirmed by positive biopsies Most of the patients returned to their family physicians after discovery of the cancer and continued with them for periodic checkups Of the 108 patients, the breast was the site of the cancer in 35, the colon and rectum in 18, the skin in 13, the fundus uteri in 13, the uterine cervix in 8, the thyroid in 4, ovary in 4, prostate in 3, lung in 1, gallbladder in 1, urinary bladder in 1, and stomach in 2, 3 patients had sarcoma, and 2 had leukemia The 5-year survival rate was unusually high and was attributed to early diagnosis The survival rate was 100% in patients with cancer of the uterine cervix, 87 5% in those with cancer of the skin, 66% in those with cancer of the fundus uteri, 75% in those with cancer of the rectum and colon, and 60% in those with cancer of the breast The general survival rate was 70% in the patients with cancer of the breast, skin, cervix, fundus, colon, and prostate There were no 5-year survivals in patients with cancer of the lung or ovary or in those with sarcoma or leukemia

Partial Addison's Disease J Pedersen and E Søndergaard Ugesk læger 119 347-351 (March 21) 1957 (In Danish) [Copenhagen]

Comparatively mild cases of primary insufficiency of the adrenal cortex, characterized by a 17-ketosteroid content in the blood or urine that lies within the normal range but does not increase after stimulation with corticotropin, as in normal persons, have been designated as partial adrenocortical hypofunction In a man, aged 57, with nervousness, dyspepsia, gout, slight pigmentation, and slightly reduced 17-ketosteroid excretion, but with a nonpathological corticoid excretion, normal electrolytes, and normal blood pressure, diagnosis of partial adrenocortical hypofunction was made The excretion of the total amount and fractions of the neutral 17-ketosteroids did not increase on powerful stimulation with corticotropin On increasing cortisone administration the pathological Kepler-Robinson test became normal, likewise the pigmentation and the other symptoms disappeared The diagnosis of partial adrenocortical hypofunction is easily overlooked It can at present best be made by the application of steroid analysis before and after stimulation with corticotropin With the aid of the corticotropin test, the distinction between primary and secondary insufficiency of the adrenal cortex can as a rule be made, and adrenal insufficiency can be diagnosed even though the amount of steroid does not fall outside of the normal range

SURGERY

Duodenal Tumors F Deucher Arch klin Chir 285 134-159 (No 2) 1957 (In German) [Berlin]

The authors describe 11 cases of tumors of the duodenum, 5 of which were benign and occurred in men between the ages of 31 and 76, and 6 of which were malignant and occurred in a 57-year-old woman and in 5 men between the ages of 45 and 68 years Three patients with benign tumor, 1 with neurinoma, and 2 with adenomas of Brunner's glands of the duodenum were operated on and have recovered The 2 other patients with benign tumor, a 76-year-old man with 2 sharply outlined polyps the size of a hazel nut in the duodenal bulb and a 31-year-old man with duodenal polyposis, were not operated on Surgical treatment was not considered in the first patient because of his advanced age The other patient, who had had heartburn and eructations for about 7 years and a mild hypochromic anemia suggesting the occasional occurrence of occult hemorrhages, was advised to submit to regular control examinations Three of the 6 patients with malignant tumor were operated on Of the 3, one who had a suprapapillary stenosing adenocarcinoma in the descending portion of the duodenum removed by duodenopancreatectomy was well and his work capacity was completly restored 4 years after the operation The 2 others had peripapillary adenocarcinomas that likewise were removed by duodenopancreatectomy, both patients were well and free of recurrence 1½ and 2½ years, respectively, after the operation The 3 remaining patients had infrapapillary carcinomas that were no longer operable when the diagnosis was made

Patients with suprapapillary tumors vomit old food particles but no bile, making differential clinical diagnosis from pyloric stenosis difficult, but the roentgenograms show widening of the duodenal bulb and also dilatation of the pylorus in addition to gastric extasia Retention of bile is the predominant symptom of peripapillary carcinoma, and many of the patients may have the classic symptoms of obstructive jaundice, making a correct clinical diagnosis difficult The diagnosis of infrapapillary tumors is probably the most difficult one to make, because the inferior horizontal portion of the stomach is not visible in the roentgenogram The fact that the vomited matter contains large amounts of bile and that the stools may have become lighter despite the absence of jaundice may aid in the diagnosis, but the right time for a radical operation may have been missed in most patients, since the superior mesenteric artery had been surrounded already by the tumor Palliative surgical treatment in the 3 patients with this type of tumor consisted of the performance of gastroenterostomy

Considerable diagnostic difficulties may arise from so-called pseudotumors In 1 of the patients with infrapapillary tumor of the duodenum, the correct diagnosis was made only during operation because the stenosing duodenal carcinoma was masked by a perforated ulcer in the bulb, which was associated with an encysted abscess Similar radiologic appearances that may be responsible for an erroneous diagnosis may be observed in patients with an annular pancreas and with a mobile duodenum Conditions, such as transpyloric prolapse of the gastric mucosa, prolapse of a pedunculated gastric polyp into the duodenal bulb, extramural processes, periduodenitis, prolapse of Vater's papilla into the duodenal wall, and perforation of carcinoma of the head of the pancreas into the duodenal wall, may cause erroneous diagnosis

Cholelithiasis Mirrored by Statistics U J Wassner Arch klin Chir 285 160-182 (No 2) 1957 (In German) [Berlin]

Of 842 patients with cholelithiasis operated on between 1948 and 1955, 136 were men and 706 were women, women thus predominated in a ratio of 5 to 1 The average age at the time of the operation was 47 69 years, and the average age of the men at the time of the operation was 7 years above that of the women About 32% of the patients, however, were operated on between 16 and 39 years of age, and only 24% were operated on between 40 and 50 years of age There is no typical age at which patients with cholelithiasis are subjected to surgical treatment The age at which the operation is performed ranges almost evenly from the 30th to the 60th year of life The typical age at the onset of cholelithiasis is between the 20th and 30th year of life

Three hundred ninety-one patients stated that they had a severe general infection several years before the appearance of the first symptoms of cholelithiasis, 12 7% of the patients had rheumatic febrile diseases, 11 9% diphtheria with pareses, 11 9% renal disease with high fever, 10% pleurisy, 7 5% typhoid fever, 6% pneumonia with pulmonary abscess, 5 6% otitis, 5 3% tonsillitis, and 5% primary tuberculous infection It, therefore, seems very likely that a severe general infection may be the cause of the occurrence of biliary calculi Of 521 patients who were followed up after the operation, 319 were free of complaints and 202 still had complaints, a ratio of 61% to 39% The prognosis is more favorable the earlier in life and the earlier after the onset of the first complaints the operation is performed The prognosis becomes less favorable, not only with advancing age but particularly with every year that elapses after the onset of the first symptoms Patients over 45 years of age have only a slight chance to become free of their complaints

The operative death rate was below 1% in patients under 35 years of age, it showed a pronounced increase in patients between the ages of 55 and 65 years, and nearly every second patient aged over 70 years died The average operative mortality due to cholelithiasis is 6 8%, but most of the deaths occur in patients over 65 years of age The operative mortality among patients of middle age who are operated on is 4% A relationship between cholelithiasis and pregnancy cannot be established with the aid of statistics and the same applies to a relationship between cholelithiasis and carcinogenicity The number of patients with postoperative complaints can be reduced only if one operates on a patient while he is still young and as soon as possible after the onset of the first symptoms If this postulate is fulfilled, a reduced death rate after surgical treatment of cholelithiasis certainly can be expected

Complaints After Cholecystectomy E Kaiser Schweiz med Wchnschr 87 251-255 (March 16) 1957 (In German) [Basel, Switzerland]

The author cites evidence indicating that associated disorders, such as duodenal diverticula, duodenal and ventricular ulcers, pancreatitis, diaphragmatic hernia, coronary sclerosis, bronchiectasis, and diabetes, are responsible for complaints after cholecystectomy in up to 25% of the patients He describes measures taken either to rule these out or to detect and treat them and then reviews follow-up studies on the first 100 of the 450 patients with disturbances of the biliary passages in whom these measures were carefully adhered to The group included 83 women and 17 men, and they were operated on between 18 and 30 months previously Seventy-four feel well and are satisfied with the results of the operation, but 17 of these 74 adhere to a somewhat restricted diet, whereas the remaining 57 can eat anything Twenty-six patients still feel sick, and all of these are upset by fats Fourteen of these 26 have complaints not directly connected with the disorder for which the operation was performed In 11 of the remaining 12 who have residuals of the disease for which they were surgically treated, the operation disclosed serious pathological changes in the liver In 5 of them the bacteriological tests on the A bile were positive, and in 1 patient a carcinoma of the pancreas had been overlooked During the operation, serious pathological changes were observed in the liver in 32 patients, and the bacteriological test on the A bile was positive in 12 In 13, these 2 conditions were combined

The organisms found were chiefly Escherichia coli, enterococci, streptococci, and micrococci (staphylococci), and the most important hepatic lesions were cholangitis, hepatitis, and various forms of cirrhosis The fact that only 12 patients had residual complaints that were connected with the biliary passages indicates that a large percentage of even the severe infections and pathological changes, such as duodenal papillitides, choledocholithiasis, and cholangitis, are being cured Owing to the fact that now cholangiography and cholangiomanometry is often being done during the operation, calculi in the cystic duct or in the choledochus are now rarely overlooked, and, for this reason, postoperative results should be better now than they were formerly Since these examinations are being carried out during operations, the causes of the postcholecystectomy symptoms have changed No longer are overlooked calculi the chief problem but rather the changes in the liver, particularly cholangitis, interstitial hepatitis, and the various forms of cirrhosis Nowadays the fault lies less often with the surgeon and more often with the patient, who did not consent to an operation early enough The author does not imply, however, that every patient with gallstones should be operated on Cardiac decompensation, a recent infarct, and a decompensated renal disorder are still absolute contraindications, and advanced age, arteriosclerotic dementia, and extreme obesity are still relative contraindications, provided the acuteness of the process does not make the operation unavoidable Early operation, before the development of complications, will improve the results of gallbladder operations

Course and Management of Hirschsprung's Disease G G Wyllie Lancet 1 847-850 (April 27) 1957 [London]

This is the first of 2 reports on 152 patients with congenital megacolon (Hirschsprung's disease) There was great variation in the severity of symptoms One child might not be seriously disturbed for some years, whereas another might have acute obstruction and be severely ill in the first days of life Yet the 2 might have apparently identical lesions The length of the aganglionic segment was an important, though not the only, factor The diagnosis could be presumed on clinical evidence, but confirmation was sought by roentgenologic examination The opaque enema was a useful diagnostic aid in patients of any age, even in babies a few days old Interpretation of the findings in young babies might be difficult, however, for at this age the contrast between the unexpanded segment and the colon above it might be slight Rectal biopsy proved useful In the present series specimens were obtained by submucous resection, and the diagnosis was based on the state of the submucous parasympathetic plexus The author discusses the differential diagnosis between congenital megacolon and other forms of chronic obstruction associated with enlargement of the colon The mortality in patients with untreated congenital megacolon was high Formerly, many infants died of obstructive crises, and few survived to adult life

The authors attempted to develop a standard procedure for each aspect of congenital megacolon until Swenson's operation (excision of the aganglionic intestine) could be performed In the neonatal period, if the signs were mild, a finger or tube passed into the rectum usually established the flow of meconium This procedure was repeated if meconium and, later, feces and gas tended to be retained Many infants did not need any early treatment other than this If rectal examination failed to produce a significant amount of meconium and gas, colonic lavage was carried out This had to be done with great care, for the wall of the intestine might be thin, and perforation may occur either by the tube or from increased tension within the lumen

If the diagnosis was not made until laparotomy, treatment depended on the length of the aganglionic segment If the cone was at the rectosigmoid junction or in the lower part of the sigmoid colon, a rectal tube was passed and guided into the dilated intestine Deflation could be achieved in this way and a colostomy avoided, as subsequent colonic lavage could be expected to keep the colon empty An enterostomy was necessary if the abnormal segment extended further along the intestine, but most infants did not need operation in the immediate postnatal period Gaseous abdominal distension might be controlled by the passage of a flatus tube or a finger regularly before feeding Acute obstructive episodes usually could be overcome by colonic lavage, but an emergency colostomy was needed occasionally The infant could be helped to thrive so well that excision of the aganglionic intestine (Swenson's operation) could be carried out as early as the age of 6 weeks Some children with congenital megacolon go through childhood with no more inconvenience than that of a slightly enlarged abdomen and moderate constipation that responds to aperients, but even these children may suffer from physical and sexual retardation, and their condition would be improved by Swenson's operation, which the author regards as the treatment of choice in practically all cases

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Treatment of Hirschsprung's Disease by Swenson's Operation G G Wyllie Lancet 1 850-855 (April 27) 1957 [London]

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The Swenson technique as modified by Dennis Browne was used in most cases Single-stage operations were performed on 66 children, while 86 had preliminary colostomies The operation consisted in mobilization of the aganglionic intestine down to the anal canal, the dissection below the peritoneal floor being made on the rectal wall In selecting the site of proximal section, the most important factor is that it should be in normally ganglionic intestine Children withstand the operation well In 35 of the 152 patients some complication occurred, and, of these children, 9 died Complications were shock, ischemic necrosis of the distal colon, pelvic infection, disruption of the wound, intestinal obstruction, anastomotic stricture, urinary retention, and functional colonic retention Children who are not yet 3 years old and who were not expected to be fully continent and children operated on during the 3 months prior to writing were excluded from the assessment of the functional results This left 102, whose ages at the time of writing ranged from 3 to 22 years A recent survey showed that 55 were normal in every way The remainder still had some deficiency, but in most this was slight Sixty-one of those over 3 years old had achieved full continence Control was relatively good in 28 of the remaining 41 patients In many patients constipation was an important cause of incontinence, and improvement usually followed correction of constipation Intestinal training was another important factor after operation Many of these children had never experienced the normal sensations associated with defecation They failed to realize, or realized too late, the need for defecation

Sympathectomies in Peripheral Vascular Diseases Follow-up Studies to Twenty Years R J Popkin Angiology 8 156-160 (April) 1957 [New York]

One hundred and eight consecutive sympathectomies were performed on patients with various peripheral vascular disorders from 1946 to 1955 The largest series included 60 patients with arteriosclerosis obliterans, 29 had thrombosis obliterans, and 19 had Raynaud s syndrome, primary Raynaud's disease, and scleroderma The ratio of males to females was 3 1 for the group with arterial occlusion, and the age of the patients was from 43 to 76 years at the time of sympathectomy Females exceeded the males 4 1 in the vasospastic group, their ages varied from 22 to 49 The arteriosclerotic patients underwent lumbar sympathectomy, in a few cases bilateral sympathectomy was performed Most of the patients with thromboangiitis obliterans had cervical and lumbar sympathectomy, many of all 4 extremities Cervical sympathectomy was performed in the patients of the other groups All patients were observed and followed for a long period The surgeons performed the operations, with varying indications, contraindications, and techniques Patients with arteriosclerosis obliterans and thromboangiitis obliterans obtained satisfactory results only when the predominant symptom was vasospasm and when the patient was a good surgical risk Increased warmth and healing of superficial ulcerations resulted in 50% of these patients Intermittent claudication was not benefited by the operation, pains did not subside and lower level amputations for gangrene was not made possible No benefit was obtained by sympathectomy in patients with scleroderma Only 1 patient with primary Raynaud's disease had good results Sympathectomy of the upper extremities were of value only for injury or causalgia Patients with thromboangiitis obliterans who continued to smoke failed to obtain good results Factors that should be taken into consideration in evaluating patients for sympathectomy are those of climate, terrain, and local customs of transportation The emotional and physical condition of a patient should not be underestimated

On the Changes in Plasma 17-Hydroxycorticosteroid Levels During Surgical Procedures S J Viikari and B H Thomasson Acta endocrinol 24 361-369 (April) 1957 (In English) [Copenhagen]

The 17-hydroxycorticosteroid level was estimated by means of methylene chloride extraction before, during, and after operation, in 11 patients subjected to thoracic operations and in 4 subjected to cholecystectomy Eight of the 11 patients subjected to thoracic operations had pumonary tuberculosis, and 3 had pulmonary cancer All 11 patients were given 25 mg of chlorpromazine hydrochloride, 12 to 16 mg of morphine, and 0 3 to 0 5 mg of scopolamine before operation Anesthesia was induced with 0 5 to 1 5 Gm of thiopentol sodium, 100 to 150 mg of meperidine, and suitable doses of muscular relaxants, usually 50 to 100 mg of succinylcholine chloride and 50 mg of Laudolissin The patients were intubated and were given oxygen and nitrous oxide A carbon dioxide absorber was used Fifteen to 30 minutes elapsed between the beginning of the induction of anesthesia and the operation The operation lasted from 75 to 135 minutes No serious surgical or anesthetic complications occurred The 4 patients subjected to cholecystectomy received morphine and scopolamine Anesthesia was induced with ethyl chloride and continued with ether Twenty to 25 minutes elapsed between the induction of anesthesia and the beginning of the operation, which lasted for from 35 to 60 minutes The ether anesthesia used in the cholecystectomies caused a marked rise in the plasma levels of 17-hydroxycorticosteroids, while the thiopental-meperidine-nitrous oxide anesthesia used for the thoracic operations caused a decrease of these levels The adrenocortical response to the operation was uniform in the different patients in spite of their variation in duration and severity This is considered to be an indication that cholecystectomy and the thoracic operations involve a maximal or at least submaximal stimulation of the adrenal cortex One to 2 hours after the operations, the plasma levels were still increasing and were greatly above normal

The Value of Phalangization in a Patient Who Had Lost All the Fingers of Both Hands F Fusi Minerva ortop 8 65-71 (March) 1957 (In Italian) [Turin, Italy]

The author reports on the case of a 54-year-old man with dry gangrene due to bilateral third degree freezing of the limbs The patient was exposed to subzero temperatures after an accident in the Alps The legs and the fingers of both hands had to be amputated The skin of both hands was repaired with grafts The 2nd and 4th metacarpal bones of the left hand were disarticulated Phalangization of the 1st, 3rd, and 5th metacarpal bones was obtained by means of Z-shaped incisions The first intermetacarpal space of the right hand was deepened Altogether the patient was subjected to 10 operations in 8 months He is satisfied with the appearance of his metacarpal hands The result of the bilateral phalangization of the first metacarpal bones was excellent, the neophalanx obtained from the 5th metacarpal bone proved to be of little use After appropriate training he became proficient in taking care of his most elementary needs

Systemic Osteopoikilosis Due to Hydrofluorosis Report of 1 Case G Nalbone and F Parlato Folia med 40 81-99 (Feb) 1957 (In Italian) [Naples]

Endemic hydrofluorosis is characterized by lesions of the teeth, osteosclerotic changes in the skeleton, disturbances of the digestive apparatus, and anemia Hydrofluorosis is present in certain areas of the United States, Canada, Argentina, India, Africa, Italy, Switzerland, Spain, Scotland, Holland, Portugal, and Ireland The authors describe the case of a 49-year-old farmer with hydrofluorosis He was born and lived all his life in a fluoric zone in Sicily The roentgenologic examination showed a massive and systemic eburnation of the whole skeleton with periostosis and endostosis, extended ossification of the fibrocartilaginous system with calcification of the vessel wells, and signs of gastroduodenitis

GYNECOLOGY & OBSTETRICS

Hypotensive Drugs in Pregnancy Toxemia W B Cherny, F B Carter, W L Thomas and C H Peete Jr Obst & Gynec 9 505-511 (May) 1957 [New York]

Seventy-four pregnant women, 29 with pure preeclampsia, 39 with toxemia superimposed on a preexisting hypertensive state, and 6 with eclampsia, were given combined treatment with hydralazine (apresoline) hydrochloride and cryptenamine (Unitensen) acetates The 2 drugs were given alternately, hydralazine in doses of 10 or 15 mg and cryptenamine in doses of 0 2 to 0 4 cc by hypodermic injection at hour or 2-hour intervals In all 29 patients with preeclampsia the blood pressure was lowered, and 16 of them were subsequently discharged undelivered but free of clinical features of toxemia, 9 patients were within 3 weeks of term, and labor was induced after satisfactory control was established The remaining 4 patients were therapeutic failures In only 3 of the 6 patients with eclampsia was it possible to lower the blood pressure significantly before delivery The poorest results were observed in the 39 patients with toxemia superimposed on preexisting hypertension The average change in antipartum blood pressure was less in this group than in those with preeclampsia The only cesarean section in the 74 patients was done in a patient who continued to get worse and in whom repeated attempts to induce labor were unsuccessful Of 75 infants who were delivered, 64 were living and 11 stillborn, giving an over-all fetal salvage rate of 85 3% Four of the 11 stillborn infants had died in utero before the institution of therapy, the corrected fetal death rate was 9 3%

Since the causation and pathogenesis of toxemia of pregnancy remain unknown, the treatment must be confined to attempted correction of demonstrable abnormalities Although reducing blood pressure and lowering peripheral resistance constitute but one phase in the over-all treatment of this disorder, there can be very little doubt that this is the most important aspect Magnesium sulfate still remains the safest of the hypotensive agents Derivatives of Rauwolfia serpentina have been unpredictable in the authors' hands, often inducing severe, prolonged hypotension and sometimes shock-like states Most of the satisfactory results have been obtained with magnesium sulfate and mixtures of hydralazine and cryptenamine

Postpartum Mental Illness A Controlled Study M Foundeur, C Fixsen, W A Triebel and others A M A Arch Neurol & Psychiat 77 503-512 (May) 1957 [Chicago]

Postpartum mental illness includes any mental illness in a woman in which childbirth was a major precipitating factor The group studied, identified as the experimental group, consisted of 100 women who were hospitalized for a mental illness that was judged to be precipitated by childbirth (mental illness precipitated by an abortion or by adoption being excluded) The control group consisted of 100 women who were admitted to the same hospital and matched for age and for year of admission but in whom childbirth was not a precipitating factor of the mental disturbance There was no significant difference between the experimental and the control group as regards psychoneurosis, dementia praecox, or manic-depressive psychoses The postpartum group did not include as many alcoholic and narcotic addicts, nor as many psychopaths as the control group The concluding summary stresses the following points 1 Postpartum mental illness is not a disease entity 2 No one religious group showed a stronger predilection for such an illness than did any other group 3 Almost one-half of these illnesses were in reaction to the birth of a second or a later child 4 The postpartum patient was like any other female patient of the same age in respect to previous mental instability 5 With regard to schizophrenia, postpartum patients had the same prognosis as did other schizophrenics 6 About 75% of the postpartum patients were found to be at a reasonable level of recovery 4 years after their hospitalization 7 The chance of a subsequent mental illness following another pregnancy was only 1 in 7 8 The condition in the postpartum patient had a favorable prognosis

Action of Reserpine on Contraction of Uterus and Dilatation of the Cervix Preliminary Report D F Klauer Prensa méd argent 43 3702-3706 (Dec 14) 1956 (In Spanish) [Buenos Aires]

Dilatation of the cervix is the longest period of labor The author found that reserpine, used when the cervix starts to dilate, favors dilatation The drug is injected intramuscularly in doses of 2 mg When more than 1 injection is necessary, the interval is 2 hours The drug acts as a tranquilizer for the mother, stimulates strong uterine contractions and dilatation of the cervix, and greatly shortens labor In the 26 cases reported by the author, in which the drug was used, all the fetuses were born with eupnea In only 1 case was there fetal suffering, and this was due to an abnormality of the umbilical cord In 1 case the drug was used to induce delivery of a macerated fetus The placenta was delivered normally in all cases within 5 to 15 minutes after delivery of the infant The involution of the uterus was normal The drug is harmless for the mother and for the fetus It does not alter normal blood pressure

Preoperative Cortisone for Vaginal Fistulas C G Collins and F B Jones Obst & Gynec 9 533-537 (May) 1957 [New York]

Of 31 women with fistulas involving the vagina, 11 were treated preoperatively with cortisone The patients were placed on a nonresidue diet and 100 mg of cortisone was administered 3 times daily, with a total dose of 3 Gm being given in 10 days Because of the anti-inflammatory properties of cortisone and the risk of spread of infection, its administration was 'covered' by the simultaneous administration of penicillin and a broad-spectrum antibiotic The remaining 20 patients not previously treated with cortisone served as controls Ten of the 11 patients, 8 with vesicovaginal fistulas and 1 each with a rectovaginal and a recto-cervicovaginal fistula were cured, 1 with a vesicovaginal fistula was a therapeutic failure Eighteen of the 20 control patients were cured, and 2 were therapeutic failures The average time between discovery of the fistula and surgical repair in the 11 patients treated with cortisone was 4 weeks The average time between discovery of fistula and surgical correction in 18 of the 20 patients was 94 weeks

For decades the basic principle in the treatment of vesicovaginal and rectovaginal fistulas was to wait 5 to 6 months before any attempt was made to correct the fistula by surgery This period of time was necessary, since early repair was associated with a very high rate of failure Failure was due to the fact that the surrounding tissues in these fistulas were hard, indurated, thickened, and infected, causing difficulty in dissection, improper identification of tissues, and interference with wound healing An average difference of 90 weeks in the time from occurrence of the fistula to successful closure was noted between the patients treated before early repair with cortisone and the control patients This degree of success attained by the use of cortisone preoperatively and early operation warrants continued application of this procedure

PEDIATRICS

Treatment of Infantile Eczema with Corticotropin and Cortisone H Klingenfuss Ann paediat 188 226-246 (April) 1957 (In German) [Basel, Switzerland]

In the first part of this paper the author reviews the literature on the use of cortisone and corticotropin in the treatment of infants with eczema, emphasizing that this treatment was first described by American authors in 1951 The second part of the report is concerned with the author's own experiences He used cortisone or cortisone ointment in 3 infants with dermatitis seborrheica, in 23 children, ranging in age from 3 months to 3 years, with eczema infantum, and in 4 young children with neurodermatitis Two children with Kaposi's varicelliform eruption are also mentioned, but in these 2 cortisone was ineffective The favorable results obtained in the 30 children with dermatitis seborrheica, eczema infantum, and neurodermatitis confirmed earlier reports The daily dose was 20, 40, or 80 mg of cortisone by mouth, depending on the severity of the lesions The duration of the treatment ranged from 5 to 48 days, with an average of 14 days Except for a slight increase in weight in a 6-month-old infant, there were no side-effects The most important advantages of cortisone therapy are rapid lessening of itching, regression of edema and erythema, and formation of a dry and clean skin The greatest disadvantage is the almost regular recurrence of the eczema after discontinuation of therapy

The author makes the following recommendations on the use of adrenocortical hormone in infantile eczema 1 For mild lesions, local application of a 1% or 2% hydrocortisone ointment preferably combined with an antibiotic ointment, for instance cortimycin, which contains hydrocortisone and neomycin This treatment can be continued for several weeks because absorption is slight 2 For severe lesions, cortisone is given internally in daily doses of 40 or 60 mg or prednisone is given in daily doses of 20 to 30 mg Because a masked infection may exist, an antibiotic, such as penicillin, aureomycin, or terramycin, should be prescribed as well To avoid side-effects, treatment with cortisone should not be continued for longer than 3 to 4 weeks The best results are achieved in infantile eczema when cortisone therapy is combined with the customary treatment employing diet, ointments, and baths

Antistreptolysin Levels in Premature Infants E Arditi and N Nigro Minerva pediat 9 170-173 (Feb 17) 1957 (In Italian) [Turin, Italy]

The authors studied the antistreptolysin levels in 72 premature infants, 30 minutes to 133 days old, weighing 480 to 3,600 Gm The antistreptolysin level in normal adults varies between 150 and 200 antistreptolysin units The average level found in the in fants was 53 25 units Levels below 12 units were not considered Two infants had a level of 166 units, 21 born during the 7th month of pregnancy had an average level of 32 95 units, and 20 born during the 8th month of pregnancy had an average level of 84 35 units Four infants born before the 7th month of pregnancy had very low levels, 2 under 12 units and 2 of just 12 units The amount of antistreptolysin present in the body of 11 babies was measured every 15 days for 2 months, and it was found that it diminished especially after the 30th day of life After 2 months, 5 babies of this group had levels below 12 units The authors conclude that antistreptolysin is present but at very low levels in premature infants, that the level of antistreptolysin is related directly to the length of the pregnancy, and that the level diminishes progressively in the first period of extrauterine life

An Examination of Factors Involved in the Transfer of Pyrimethamine in Human Milk D F Clyde East African M J 34 81-85 (March) 1957 [Nairobi, Kenya]

It has been found that pyrimethamine (Daraprim) is excreted in human milk and, thus, might eliminate parasitemia in breast-fed infants The author evaluated indirect prophylaxis of infant malaria by treating mothers with pyrimethamine and determining (1) the extent to which women excrete the drug in their milk, (2) the amount of drug-containing milk taken up by the infants, and (3) the relationship of the amount of drug transferred to that required for the direct treatment of malaria There was little difference in the amounts of pyrimethamine excreted in human milk after the treatment of lactating women with 50 or 75 mg of the drug in a single dose The quantity of drug appearing over a 2-day period in the milk is nearly twice that required for the cure of malaria by direct treatment of the baby, provided that the breast milk constitutes most of the child's diet

In an urban and a rural area of Tanganyika, respectively, 90 and 96% of babies aged less than 3 months, 64 and 92% aged 4 to 6 months, and 39 and 71% aged 7 to 9 months were found to take breast milk in amounts sufficient to ensure that the accepted minimum curative dose of pyrimethamine was exceeded Nevertheless there are reasons why the use of the drug indirectly by milk transfer is not indicated First, resistance to pyrimethamine on the part of the most common parasite, Plasmodium falciparum, has now been demonstrated from localities in the Sudan, Kenya, and Tanganyika and is suspected for other species in Kenya and Ethiopia Such resistance appears to have arisen in the course of prolonged drug administration Second, under most circumstances, it would be no more difficult to arrange the attendance at clinic or community center of both mothers and babies for individual treatment as of mothers alone Third, the larger doses required for indirect malaria prophylaxis in infants makes this method more costly than administration of the drug to mother and baby individually In a mass drug scheme, involving individual treatment of persons of all ages, however, it may be reassuring to know that infants will receive additional pyrimethamine in their mothers' milk

UROLOGY

New Treatment of Renal Tuberculosis J M Gil-Vernet Vila and R Gosalbez Acta urol belg 25 61-74 (Jan) 1957 (In French) [Brussels]

The authors recommend a new therapeutic method for renal tuberculosis that employs intermittent aspiration of the renal pelvis and direct local application of tuberculostatic drugs Catheterization of the renal pelvis is accomplished with a plastic bougie with a caliber as large as the ureter will permit This catheter is left in situ for from 15 to 20 days While systemic administration of streptomycin, aminosalicylic acid, and, if necessary, hydrazides is continued, 20 cc of a para-aminosalicylic acid solution is instilled through the indwelling catheter 3 or 4 times a day It is of no importance if this quantity exceeds the capacity of the renal pelvis, because a pyelocanalicular reflux is believed to be beneficial The solution is retained by closing the tube for from 10 to 15 minutes Two illustrative case histories indicate that the indwelling-catheter treatment was given for 1 or 2 weeks out of each month

The excellent results obtained with this treatment are ascribed to the following factors (1) to the direct external drainage of the tuberculous foci, which avoids the development of secondary lesions, (2) to functional arrest of the renal excretory ducts, and (3) to direct local intracavitary tuberculostatic effect of the aminosalicylic acid solution This action is superior to that obtained by systemic treatment due to the fact that the fibrosclerous covering that surrounds the tuberculous cavities prevents the antibiotic or tuberculostatic drugs to reach the tubercle bacilli in adequate concentrations The method was easily carried out and completely harmless, and it effected the healing of cavities that would otherwise have required nephrectomy Systemic administration of tuberculostatic drugs and dietetic and sanatorium treatment, however, should be combined with the described local treatment

Obstructive Pathological Conditions in Relation to Male Fertility J Blackman M J Australia 1 497-501 (April 13) 1957 [Sidney]

Of 110 men referred for investigation of infertility, 39 were found, after repeated semen analyses, to have azoospermia Of the 39 patients, 21 had an obstruction of the excretory canal and 1 had retrograde ejaculation into the bladder Of the 21 patients, 7 had epididymal occlusion without history of inflammation, 5 had chronic epididymitis, 4 had congenital absence of vas deferens, 1 had a cyst of epididymis and junctional failure of vasa efferentia, 1 had bilateral cysts of globus major, 1 had traumatic deficiency in vas deferens, and 2 had probable occlusion of ejaculatory ducts Thus most of the patients with obstructive sterility had lesions of both epididymes This is reasonable when one considers the length of the excretory canal (about 21 feet) and its small diameter

In practice one must continue to be optimistic and encourage the patients in what must seem a hopeless predicament Diagnosis can often be made clinically pitalization 7 The chance of a subsequent mental illness following another pregnancy was only 1 in 7 8 The condition in the postpartum patient had a favorable prognosis

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Obstructive Pathological Conditions in Relation to Male Fertility J Blackman M J Australia 1 497-501 (April 13) 1957 [Sidney]

Of 110 men referred for investigation of infertility, 39 were found, after repeated semen analyses, to have azoospermia Of the 39 patients, 21 had an obstruction of the excretory canal and 1 had retrograde ejaculation into the bladder Of the 21 patients, 7 had epididymal occlusion without history of inflammation, 5 had chronic epididymitis, 4 had congenital absence of vas deferens, 1 had a cyst of epididymis and junctional failure of vasa efferentia, 1 had bilateral cysts of globus major, 1 had traumatic deficiency in vas deferens, and 2 had probable occlusion of ejaculatory ducts Thus most of the patients with obstructive sterility had lesions of both epididymes This is reasonable when one considers the length of the excretory canal (about 21 feet) and its small diameter

In practice one must continue to be optimistic and encourage the patients in what must seem a hopeless predicament Diagnosis can often be made clinically and from the volume and quality of the ejaculate Testicular biopsy is a valuable procedure when one is in doubt about spermatogenesis Vasoepididymography with introduction of a 50% solution of iodopyracet into the excretory canal by the direct approach to the vas deferens at the neck of the scrotum may be performed simply and without morbidity and is of value in selected patients It is not recommended as a routine procedure Exploration of the scrotum with an attempt to reconstitute the seminal cause is recommended when possible Vasovasal anastomosis usually gives good results, and vasoepididymostomy gives excellent results when there is a local block of motile spermatozoa in the head In high obstructions to the head of the epididymis, the fertilizing power of the sperms is probably diminished, but if spermatozoa are detected, an attempt should be made to bring about the desired pregnancy by artificial insemination, if necessary Due emphasis must be on preventing acquired obstructions to the genital tract by the avoidance of damage to the vas and vessels of the cord during operations for undescended testes, inguinal hernia, varicocele, or hydrocele Even minor epididymal inflammation in young men should be vigorously treated, and bed rest should be instituted to facilitate rapid resolution

Renal Liposarcoma A Ortiz, J J Guido, A Corrieri and D Hojman Rev argent urol 25 132-136 (May-Aug) 1956 (In Spanish) [Buenos Aires]

Renal liposarcoma is extremely rare The tumor may appear at any age It is more frequent in women than in men, and, as a rule, it is unilateral Only 4 of the 8 cases previously reported in the literature were pure liposarcomas The authors report 2 new cases of pure inter-renal liposarcoma in women 52 and 42 years old respectively The tumor was located in the left kidney in 1 and in the right kidney in the other The treatment consisted of nephrectomy One of the patients was still alive and in good health 3 years after operation The other patient died of uremia in the immediate postoperative period

Sodium and Potassium Dehydrocholate as Diuretic Agents A Vogl and M Kaizer Angiology 8 145-155 (April) 1957 [New York]

An attempt was made to establish more clearly the role of bile salts as diuretic agents Sodium dehydrocholate had a potentiating effect on mercurial diuresis in 11 of 19 edematous patients, 6 had a fair and 2 had no response Intravenous injections of 10 cc of a 20% solution of sodium dehydrocholate (Decholin) were given slowly over a period of at least 5 minutes They were well tolerated by all the patients The toxicity of potassium dehydrocholate was studied in 10 patients with inoperable carcinoma or advanced senility, whose ages ranged from 65 to 85 years Five to 10 cc of 20% potassium dehydrocholate was injected slowly intravenously No demonstrable side-effects and no significant electrocardiographic changes were observed The results did not improve when potassium dehydrocholate was substituted for sodium dehydrocholate This indicates that the sodium content of sodium dehydrocholate does not interfere with the diuretic effectiveness of the bile salt The combination of sodium dehydrocholate and acetazolamide (Diamox) did not appear to have any appreciable effect on the diuresis

OPHTHALMOLOGY

Diamox (Acetazolamide) in Cataract Surgery L P Agarwal and S R K Malik Ophthalmologica 133 153-159 (March) 1957 (In English) [Basel, Switzerland]

It is generally believed that peripheral iridectomy prevents prolapse of the iris after cataract operation because it short-circuits the flow of aqueous humor Since acetazolamide (Diamox) is known to diminish the formation of aqueous humor, the authors decided to use it in cataract extraction without performing peripheral iridectomy They report observations on 300 patients who were admitted for cataract extraction to the hospital of the Medical College of Agra India Acetazolamide was given preoperatively to 100 patients, in another group of 100 patients, peripheral iridectomy was done, and the third group of 100 patients were used as controls The group treated with acetazolamide received 1 delayed-action capsule (250 mg) and 1 tablet (250 mg) of acetazolamide 1 hour before the operation, and this treatment was repeated for 3 days The incidence of iris prolapse in this group was reduced from 13 to 5%, which compares favorably with the iris prolapse rate of 4% in patients subjected to peripheral iridectomy The incidence of flat chamber was negligible Vitreous prolapse occurred in 6 of the patients who received acetazolamide, as compared with 10 in the group subjected to peripheral iridectomy and 11 in the control group, that is, it was reduced nearly half The postoperative course was uneventful It is suggested that the reduction in iris prolapse, vitreous prolapse, and flat chambers is due to the diminution of the flow of aqueous humor in the posterior chamber Since, moreover, acetazolamide has a mild chemotherapeutic effect, the authors recommend its routine use in connection with operations for cataract

Immediate and Late Complications and Late Deaths Occurring After Iridectomy with the Graefe Knife in Patients with Acute Glaucoma F Cuccagna Ann ottal e clin ocul 83 130-140 (March) 1957 (In Italian) [Genoa, Italy]

Sixty-two patients, 17 male and 45 female, were subjected to iridectomy One patient was under 40 years of age 12 were from 40 to 50 years old, 15 from 50 to 60, 21 from 60 to 70, 9 from 70 to 80, and 4 above 80 Complications were present in 17 patients at the time of discharge from the hospital One had a cataract due to trauma to the lens capsule incurred during the operation Three had hemorrhage into the anterior chamber, 3 endovitreal hemorrhage, and 1 retinal hemorrhage Three had iritis One had panophthalmitis and was treated before the advent of antibiotics One had detachment of the choroid, and 4 had persistent endocular hypertension Twenty-two patients were reexamined long after the operation Cataract was present in all 22 patients, the cataract was advanced and operable in 3 patients Some patients had secondary hypertension with restricted vision

A Three Year Experience with Implantation of Polystan Sponge F Schwab Wien med Wchnschr 107 270-272 (April 6) 1957 (In German) [Vienna]

Polystan, an elastic polythene sponge, was used for the formation of the stump in 91 patients, in whom enucleation of the eye-ball was performed Of these patients, 87 had normal postoperative healing and in 4 the polythene sponge had to be removed because of inflammation of the conjunctiva The inflammation was due to the hardening of the sponge after it was cut out of a large sponge to obtain the required size This inconvenience has been eliminated, since polythene sponges are now available in different sizes Polythene sponge was well tolerated by the tissue, healing being uneventful even though the period of absolute rest in bed was reduced Most of the patients were discharged 8 or 9 days after operation The follow-up period was 1 to 3 years The results obtained with the implantation of a polythene sponge in 87 of 91 patients were encouraging

PATHOLOGY

The Malignity of the Cylindromas Anatomoclinical Observations on 22 Patients with Cephalic Cylindromas L Pietrantoni and G B Leonardelli Ann otolaryng 74 15-31 (Jan -Feb) 1957 (In French) [Paris]

Certain histopathological and clinical observations on the malignity of the cylindromas are presented by the authors on the basis of the findings in 22 patients with genuine cylindromas observed and followed by them during the last 10 years and in 31 cylindroma-like tumors subjected to histological study The methods of treatment used in these patients included simple enucleation of the tumor, followed by a 5-year cure in 1 patient, enucleation associated with roentgenotherapy in 7 patients, with one 7-year cure occurring, and radical surgical excision with removal of both the tumor and the organ concerned, e g , the parotid and the submaxillary glands the larynx, and the maxilla in 18 patients followed by cures in 17 that have lasted 4, 5, 8, and 10 years or more, even when the tumor showed obvious histological findings of malignity Local recurrences made a second radical operation necessary in 6 of these 17 patients, however The postoperative supervision of the patients consisted of a series of checks, made first at monthly intervals and later at intervals of 3 months for periods ranging from 2 to 10 years The patients so checked were also subjected to radiological examination of the skeleton and the respiratory apparatus every 6 months, because cylindromas have a tendency to produce latent osseous or pulmonary metastases

The differential diagnosis of the cylindromas must be based on their histomorphologic appearance because the symptoms they produce are so much like those produced by 'locally' malignant tumors (mixed tumors, invasive fibromas) and benign tumors that no distinction can be made between them The uniformly slow course of the true cylindromas, their lack of invasiveness in the tissues in which they develop, the fact that they may be found in persons of any age, and their variability of localization also make the diagnosis difficult The histological characteristics presented by the tumors in this series warrant the statement that a "true" cylindroma is an epithelial tumor constituting a particular histological variety of the mixed tumor and deriving from the salivary seromucous tissue Cylindromas, though possessed of relative cytohistological and cytostructural monomorphism, are to be regarded as potentially malignant because of their cellular richness, their tendency to recurrence, and the frequency with which they undergo malignant degeneration as compared with mixed tumors Radical resection, or rather a combination of radical removal and radiotherapy, is therefore the treatment of choice for cylindromas, just as it is for malignant tumors, because a definitive cure cannot be obtained by simple enucleation or irradiation alone

Experimental Studies on Bacterial Contaminations of Bank Blood III The Survival and Growth of Bacteria in Bank Blood Incubated at 37 C for Short Periods Before Refrigeration P Gellar, L Chandler and E Jawetz J Lab & Clin Med 49 573-582 (April) 1957 [St Louis]

A small percentage of bank bloods will become contaminated with bacteria during collection in spite of the most rigid safeguards While it is generally true that most fresh whole blood specimens kill or suppress the growth of a variety of bacteria, the earlier premise that contamination would be so attenuated as to be completely innocuous has been amply disproved by a number of serious or fatal reactions due to heavily contaminated blood Many different antiseptic agents have been added to banked blood to prevent bacterial contamination, but none were completely satisfactory Recent investigations with antibiotics appear more promising, but additional studies are necessary During the course of previous studies on banked blood contamination, the authors inoculated coliform bacteria into fresh blood noted that the number of viable bacteria dropped sharply when the blood was allowed to remain at room temperature for 1 hour prior to refrigeration This finding suggested the possibility that the natural antibacterial activity of fresh whole blood might be enhanced by incubating the blood at 37 C (98 6 F) for brief periods before the blood was refrigerated Studies were carried out on the survival and propagation of various types of gram-negative bacteria in such incubated specimens The gram-negative bacteria were divided into 2 groups, the warm-growing" and the "cold-growing" on the basis of their characteristics in broth at 37 C (98 6 F) and at 4 C (39 2 F)

The authors were able to demonstrate that the natural antibacterial properties of fresh whole blood may be enhanced by incubation at 37 C for brief periods prior to storage of the blood at 4 C Such incubation was much more effective in ridding the blood of those bacteria that grow best at 37 C than it was in ridding it of organisms that grow more rapidly or exclusively at lower temperatures This apparently anomalous finding may be explained by a combination of 2 effects the activity of specific antibacterial blood factors and the influence of low temperatures on bacterial growth The authors used 27 different blood samples for this investigation They found that with small inoculums of cold-growing bacteria, growth in the incubated samples was frequently delayed for 7 days or more, but, by the end of 21 days, large numbers of organisms were almost invariably present Any given blood suppressed the growth of different strains of bacteria to a different degree, and no dependence could be placed on any sample to eliminate a particular chance contaminant Storage of banked blood at refrigerator temperature is not in itself an adequate means of inhibiting all types of bacterial growth or of insuring sterility of the blood

Study of Hemoglobinogenesis Through Alkali-Denaturation Test Clinical and Experimental Observations in Intoxication Caused by Carbon Monoxide

C Giordano and A Guarino Folia med 40 15-23 (Jan) 1957 (In Italian) [Naples]

The effect of carbon monoxide on hemoglobinogenesis was studied in 20 subjects who in their work were chronically exposed to carbon monoxide All subjects received an alkali-denaturation test Experiments were also carried out on 2 groups of rabbits exposed to carbon monoxide The results showed that of the 20 subjects all with marked carboxyhemoglobinemia, 3 had high levels of alkali-stable hemoglobin These 3 subjects had at some time during their life had acute episodes of carbon monoxide poisoning The experiments on rabbits showed that, in subacute carbon monoxide poisoning, the hemoglobin level is increased for a period of 50 to 60 days

Sunlight as a Cause of Melanoma A Clinical Survey

H O Lancaster and J Nelson M J Australia 14 452-456 (April 6) 1957 [Sydney]

A survey was carried out to ascertain whether environmental factors, especially sunlight, or certain bodily characteristics, such as fair skin, are of importance in the etiology of melanoma On the same day a patient with melanoma was interviewed, 2 other patients were interviewed These controls belonged to the same sex and age groups, and, in each pair, 1 had a basal cell carcinoma, squamous cell carcinoma, or keratosis of the skin, while the other had leukemia or cancer in some site other than the skin Of the 173 patients with melanoma studied, 67 were men and 106 were women There was an excess of red-haired and of fair-haired persons among these patients as compared with the other 2 groups As regards the color of the skin, there was a larger proportion of fair-skinned types among the patients with melanoma and with other forms of skin cancer than among those with cancers in other sites There were also more persons with blue and green-grey eyes among the patients with melanoma and skin cancer than among those with other forms of cancer

A summary of sun exposure was devised by assigning scores to a number of factors and giving a total of these scores The factors considered were length of time of living in Australia, occupational exposure, industrial hazards, war service, and the various sports Of the patients with melanoma, 26 6% had experienced what was judged to be excessive exposure to the sun, as compared with 21 4% of the patients with skin cancer and 16 2% of the patients with other cancers In discussing the reasons why the evidence in favor of both melanoma's and skin cancer's being caused by exposure to light was not more definite in this survey, the authors point out that there are associations with coloring and that an imporant association between skin color and exposure to sun probably exists, for a person with a fair, easily burned skin will probably not be exposed to so much sun as a dark-complexioned person who has no reason to fear exposure to the sun, since he does not burn easily This association is probably responsible for making the differences in exposure between the various groups less than they would otherwise have been The survey revealed that melanoma tends to occur in those with fair skin and to be more frequent in those who have been exposed to excessive doses of sunlight

Bacteria Found in the Air Over the Atlantic Ocean

C D Kelly and S Layne Canad J Microbiol 3 457 460 (April) 1957 [Ottawa, Canada]

Since 1947, aerobiological studies have been carried out on the micro-organisms in arctic and nonarctic parts of Canada, Alaska, and over the Arctic Ocean The fungi and bacteria found were apparently of soil origin The results of examinations at different periods of the year indicated that in time the micro organisms died and the air eventually became sterile Air that had been over the arctic for a long time and winter air carried only small numbers of the more resistant types of micro-organisms Fungi in such air were few in numbers or absent, indicating that they have a lower resistance than the bacteria The sporeformers showed the greatest resistance and at times were the only organisms present

This report is concerned chiefly with the aerobiological studies carried out during 2 sampling flights, over the Atlantic Ocean between Montreal and London in June and August, 1951 At 8,000 to 9,000 ft, the numbers of bacteria in the Atlantic air were low and average counts per cubic foot varied from 0 0 to 0 5 in polar air masses and 0 3 to 0 9 in tropical air The fungus counts were somewhat higher, being 0 05 to 2 6 per cubic foot in polar air and 0 2 to 9 0 in tropical air Isolation and classification of the bacteria revealed that those over the Atlantic were much like those found over land and included the following genera Pseudomonas, Flavobacterium, Achromobacter, Corynebacterium, Micrococcus, Sarcina, and Bacillus Since it was believed that groups of similar organisms would give as much information as would the species completely classified, the bacteria are reported as gram-negative rods, gram-positive pleomorphic rods, micrococci, and sporeformers The ratio of the types of bacteria could be used to some extent to trace the history of an air mass The tropical air tended to show a higher percentage of gram-negative rods and gram-positive pleomorphic rods than of micrococci and sporeformers, while arctic air tended to show the opposite

BOOK REVIEWS

Atlas of Neuropathology By Nathan Malamud, M D , Associate Clinical Professor of Psychiatry and Neuropathology University of California, San Francisco Cloth $20 Pp 468, with illustrations University of California Press, Berkeley 4 1957

In this impressively large and handsome volume, the author attempts a comprehensive visual presentation of the gross and microscopic features of neurological disease The first of 10 sections comprising the main body of the book is a general description of the cytology and cellular pathology of the nervous system with 15 colored cuts illustrating as many staining methods and 37 black and white representations of typical pathological changes in neurons, nerve fibers, glia, and connective tissue The remaining nine sections cover, in order, inflammatory, toxic and nutritional, demyelinating, vascular, traumatic, degenerative, neoplastic, and developmental disorders, with a final section on the sequelae of paranatal and postnatal pathological conditions In his preface, the author states that 'equal space has been given to all categories, but special attention has been paid to neglected conditions such as the heredodegenerative disorders and those pertaining to geriatrics, cerebral palsy and mental deficiency' A case method of presentation is used throughout, with a brief clinical abstract of a specific case followed by a description of the chief gross and microscopic features, illustrated by several black and white photographic reproductions of appropriate preparations Text and illustrations face each other on opposite pages The book concludes with a bibliography and an adequate index This imposing and attractive volume, with nearly 1,000 photographs of gross and microscopic preparations, excites at first glance one s enthusiastic expectation The illustrations are models of excellence, the typography, arrangement, and format are admirable, and the prose clear The text and illustrations cover the field well No important diseases are omitted

These virtues, however, are not sufficient to make the work the comprehensive and definitive atlas of neuropathology that its beauty and size lead one to expect No atlas can reflect all the nuances of neuropathological changes In addition, the case method of presentation has few advantages and does not lend itself to thorough exposition of the manifold features of disease Even within these limitations, some of the deficiencies of this book are surprising Unfortunately, the coverage is superficial and sketchy and much is lacking in basic and important detail For example, of 18 illustrations depicting the features of general paresis, only one myelin sheath stain is presented, and there is no description of the myelin destruction in the cortex and adjacent white matter Also, there is no mention of the independence in this disease of the infiltrative process in the pia-arachnoid and that in the cortex or of the independence of the infiltrative and parenchymatous changes Again, in the discussion and illustration of Huntington's chorea, the cortical changes are presented in only the most elementary and superficial fashion In a half page of text on progressive lenticular degeneration (Wilson's disease), no mention is made of the deposition of copper in the brain and no photomicrographs of copper-containing tissues are shown The Kayser-Fleischer ring is described as a characteristic pigmentation of the cornea with no suggestion that deposits of copper are responsible This lack of important detail runs generally throughout the book Furthermore, the text is surprisingly brief and almost exclusively descriptive, with no concern for the dynamics of disease Such defects certainly reduce the book's value to the neuropathologist and make its use hazardous even for the beginner in that field, unless he supplements it with more authoritative and thorough textbooks and guides

The Doctor, His Patient and the Illness By Michael Balint, M D Visiting Professor of Psychiatry College of Medicine University of Cincinnati Cincinnati Foreword by Maurice Levine, M D Cloth $7 50 Pp 355 International Universities Press Inc 227 W 13 St , New York 11, 1957

In Great Britain a large number of psychiatrists are either hostile to any kind of psychotherapy or if they are not hostile they are interested only in physical methods, such as shock treatments, brain operations, and the ever increasing number of drugs' Yet the more one learns of the problems of general practice, the more impressed one becomes with the immense need for psychotherapy" This new book is directed essentially to the resolution of this frustratingly paradoxical situation

Avowedly, it is a critical report on a research project conducted at The Tavistock Clinic by a team of 14 practitioners and a psychiatrist who met once weekly for two or three years to study "the pharmacology of the drug 'doctor In effect, however, the book is much more than a research report It presents an instructive number of treatment records, submitted by the participating physicians, each record showing what the physician did with, to, and for the patient and what the research group thought thereon—all this with unsparing frankness The author expands on these reports and their 'group analysis to argue a number of issues Thus, each patient's illness incorporated some psychopathological components, and, as a result of treatment, the patient fared ill or well, according to the competence of the physician to recognize and to deal with these components The general practitioner, according to the author, should exercise psychiatric awareness in his assessment of given patients and possess adequate skills to do requisite psychotherapy, lest he go beyond his depth, he should also know when and how to start and when and how to stop These matters are treated at length The author raises many more questions than he can answer defi-

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These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated

nitely or illuminate clearly The problems involved are complicated, but the author has not adequately differentiated between the gestaltism of the physician as a somatotherapist and as a psychotherapist, nor has he provided any criteria to help the general practitioner differentiate between what he can and should attempt in psychotherapy and what he must leave to the expert

In spite of this, the book is a work of truly major significance It is a penetrating, frank, stimulating, and instructive critique of present-day medical practice It is an earnest and courageous assault on a major problem This is a work to be read by the general practitioner, the medical educator, and the psychiatrist Also, those interested in learning how medicine is practiced in Great Britain under the National Health Service will find this book most revealing

Occupational Diseases of the Skin By Louis Schwartz M D Louis Tulipan M D and Donald J Birmingham, M D, Medical Director Chief Dermatologist Occupational Health Service, U S Public Health Service, Cincinnati Third edition Cloth $18 Pp 981, with 191 illustrations Lea & Febiger, 600 S Washington Sq Philadelphia 6, 1957

This is the third edition of what has come to be the standard textbook on occupational diseases of the skin This edition appears 10 years after the second and has been brought up to date Three new chapters have been added an interesting discussion on occupational marks by F Ronchese, another on skin hazards from radiation in atomic industry, medicine, and defense by W D Norwood, and one on skin hazards of detergents and surface-active agents by Anthony M Schwartz This book is a complete source of information on occupational dermatoses and related matters There is coverage of practically every kind of industrial contact that one is likely to encounter There are chapters considering the dermatoses caused in various industries and those caused by contact with a wide variety of substances, finally, there is an analysis of many occupations considering what particular occupational hazards are associated with each There is also a discussion of the medicolegal aspects of occupational dermatoses There are many useful lists and tables, such as a list of plants and woods that have been known to cause irritation, a list of patch test concentrations, and a list of known chemical irritants This book is indispensable to any physician who deals with industrial dermatosis It should also be of value to anyone, physician or otherwise, who has to do with plant hygiene

Modern Trends in Geriatrics Edited by William Hobson B Sc M D D P H Professor of Social and Industrial Medicine University of Sheffield Sheffield Cloth $13 50 Pp 422, with 68 illustrations Paul B Hoeber Inc (medical book department of Harper & Brothers) 49 E 33rd St New York 16 1957

In his introduction, the editor points out that geriatrics has been a neglected subject because the medical profession, in general, has been of the opinion that not much help could be given the elderly The medical problems of the aging have been regarded as of minor importance when compared with, for example, the problems of child health Geriatric medicine is now becoming recognized as a major field of medical study The elderly, like the young, have anatomic, physiological, and pathological features peculiar to their age There is little of specific value in standard medical books on these subjects There is practically nothing of any importance on the normal variations that occur with passing time In this volume the most important aspects of the health and medical problems of the elderly are discussed There is an excellent short bibliography at the end of each chapter

The list of authors of the various chapters reflects care in selection and in ability to summarize the literature of their particular subject The authors are British and their discussions reflect the rapidly increasing amount of research being conducted in geriatrics in Great Britain There is an excellent article on aging from a biological and cellular point of view by Geoffry H Bourne This article contains a classification of cells according to the aging process There are a number of illustrations An important discussion of the normal values and the interpretation of biochemical data of the elderly is presented by Arthur Jordan The contribution on arteriosclerosis and hypertension by F H Smirk reflects a rich experience in clinical medicine with hypertensive patients In a small book of this kind, it is not possible to include all aspects of aging There is no exhaustive presentation of the psychiatric problems of the elderly, but, in the chapters on home care and also that of hospital care of the elderly, reference is made to the importance of emotional problems This volume should be required reading for faculties of medicine, interns, residents, and general practitioners The time has come when more attention and study must be directed to the problems of our aging population

Blood Transfusion in Clinical Medicine By P L Mollison M D, M R C P Director, Medical Research Council s Blood Transfusion Research Unit, London With foreword by Sir Alan N Drury C B E F R S Chapters on blood groups revised in collaboration with Marie Cutbush, B Sc Second edition Cloth $9 Pp 587, with 80 illustrations Charles C Thomas Publisher 301-327 E Lawrence Ave, Springfield, Ill Blackwell Scientific Publications 24-25 Broad St Oxford England Ryerson Press 299 Queen St, W, Toronto 2B Canada 1956

Most of the chapters in the second edition of this textbook have been rewritten in order to include the many advances made in this field in the past five years The various chapters deal with the taking and storing of blood, survival after transfusion, blood volume, hemorrhage, anemia, methods of estimating the survival time of red blood cells in vivo, results in normal subjects, diminished survival of red blood cells in disease, ABO blood groups, the Rh groups, other blood group systems, interactions between red blood cells and their own serum or plasma, the reactions of red blood cells and serum changed' by bacteria, blood grouping techniques, incompatibility or shortening of the life-span of red blood cells by isoantibodies, investigation of hemolytic transfusion reactions, other unfavorable effects of transfusion, some normal blood findings in newborn infants, indications for simple transfusion, placental transfer of antibodies, and hemolytic disease of the newborn infant The chapters contain detailed information and instructions in technique A lengthy bibliography is included The book is highly recommended

QUÈRIES AND MINOR NOTES

SEASONED FOOD FOR INFANTS

To the Editor —*Is it all right to feed seasoned puréed foods from the table to infants?*

H J Jacobs, M D , Spring Valley, Ill

This inquiry has been referred to two consultants, whose respective replies follow —Ed

Answer —This question could be answered more concisely if the nature of the seasoning and the ages of the infants were defined While pureed foods can be fed infants under 3 months of age, nutritional requirements can be met just as adequately during these months without such supplementation Hence, the consensus of authorities in the field of infant nutrition is that mothers should not be asked to expend the time required for such spoon feeding (Butler and Wolman *Quart Rev Pediat* 9 63, 1954) As infants should be getting milk or milk substitutes in amounts that cover their sodium and chloride requirements, salting food is not essential and oversalting may be undesirable Puréed foods for the family as usually seasoned in this country are all right for infants over 6 months, but curry and hot tamale should not be included

Answer —None of the flavoring or seasoning agents in common use, other than table salt, are apparently needed in the diet of young infants—certainly not during the early months when they seem to require and prefer puréed foods Feeding the baby on puréed leftovers is not to be recommended Such foods are too likely to be inferior, owing to vitamin deterioration and bacterial growth, irrespective of whether they are seasoned or not

When the time comes to give table foods (which generally means foods that are not puréed), there is no apparent necessity to exclude foods which are moderately or normally spiced, since there is no evidence in the medical literature that such foods are harmful The child may or may not like the foods as seasoned for the family If he does not, then he solves the problem very nicely for himself by simply refusing to eat them Recent researches by Schneider and associates (*Am J Gastroenterol* 26 722, 1956) indicate that many spices are permissible even in the diets of patients with gastric ulcer Another recent report on 'Peptic Ulcer Therapy' by C A Marshall and associates tends to confirm the observations of Schneider

SPLITTING NAILS

To the Editor —*Is there any evidence that pantothenic acid is of value for splitting nails?*

S Theodore Sussman, M D , New Rochelle, N Y

Answer —There are no reports or any clinical evidence that pantothenic acid is of value for splitting nails

LYSINE IN METABOLISM

To the Editor —*What is known of lysine in human metabolism? What function is it thought to have, what is thought to be the minimum daily requirement, and what foods contain the most lysine? Can it be obtained in tablet, powdered, or liquid form as such? How toxic is it? What quantities can be eaten with no danger to humans, and what would be the signs and symptoms of toxicity?*

H Curtis Wood Jr , M D , Philadelphia

Answer —The amino acid lysine is one of the constituents of most proteins It is dibasic, as it contains two amino groups but only one carboxyl group In pure form it usually is prepared as the monohydrochloride Only the L isomer exists in natural foods and is metabolized in man It is present in considerable quantities in most foods, composing for example 7 2% of the amino acids in whole egg protein, 8 1% of beef muscle, 3 3% of oats, and about 2 7% of whole wheat protein Milk, fish, and most other animal foods are good sources of lysine Some vegetables and fruits, although containing little protein, may add significant quantities of lysine to the diet

Lysine cannot be synthesized in the body and therefore has been called 'essential,' as demonstrated in the experiments by Rose (cited in *Nutrition Rev* 14 232, 1956) In contrast to most other amino acids, lysine does not enter into the dynamic equilibrium' described by Weissman and Schoenheimer (*J Biol Chem* 140 779, 1941) Many of the so-called essential amino acids can be replaced by closely related compounds, but lysine cannot, so that it has been spoken of as 'the most specifically indispensable of the amino acids" As an essential amino acid, lysine is required for maintenance of nitrogen balance in adults, growth and for healing of wounds and regeneration, that is, it is required for protein synthesis as one of the essential amino acids The minimum requirement for lysine by the healthy adult is stated by Rose to be 1 6 Gm per day, although he has suggested a recommended daily allowance of 3 2 Gm (cited in *Nutrition Rev* 14 232, 1956)

Little is known concerning toxic effects of lysine in man Supplementation with lysine depresses growth of experimental animals on deficient diets In fact, the addition of other individual amino acids has been reported several times to produce deleterious effects on laboratory animals (Elvehjem and Harper Council on Foods and Nutrition, *J A M A* 158 655 [June 25] 1955) Vegetable (especially cereal) diets are somewhat lower in lysine than those containing animal products but should be supplemented with lysine Further research will be necessary to assess the relative importance of the administration of lysine and other amino acids and the possible harm from so doing

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The answers here published have been prepared by competent authorities They do not, however represent the opinions of any medical or other organization unless specifically so stated in the reply Anonymous communications and queries on postal cards cannot be answered Every letter must contain the writer s name and address but these will be omitted on request

TREATMENT OF URTICARIA

To the Editor —*Is there anything new in the treatment and management of chronic intractable urticaria? What is the status of histamine desensitization as a treatment?*

Henry Fisketti, M D , Duluth, Minn

This inquiry has been referred to two consultants, whose respective replies follow —Ed

Answer —An effort should be made to find the etiology of a given case Treatment of urticaria should be based whenever possible on the cause In about 40 to 50% of the cases, urticaria has an allergic etiology Allergy to intestinal parasites is occasionally encountered Psychosomatic factors are not infrequently also of importance Antiallergic drugs, antihistamines, and steroids may be used for limited time periods Histamine 'desensitization' does not have a logical basis in the treatment of urticaria

Answer —There is no recent change in the treatment of chronic urticaria In some, an extrinsic allergic factor can be demonstrated This is usually a drug or food or at times a persistence from a penicillin reaction The general belief also prevails that some cases are caused by foci of infection, such as tonsils, gallbladder, or prostate In some cases, parasitic infestation (tapeworm, Ascaris) may be responsible In a very large percentage, however, no allergic or other proved etiological factors can be demonstrated For this group various explanations have been offered, such as psychosomatic or intrinsic Injections of histamines have been used in urticaria Their efficacy is in doubt It is established that one cannot desensitize to histamine, i e , the dose tolerated at the beginning of treatment is the same as at the end of a series of injections Treatment of chronic urticaria consists in some of the elimination of allergic or infectious causes Where no cause can be found, nonspecific therapy, such as the injection of typhoid vaccine or similar measures, is used by some For palliative relief, antihistamines are employed, at times with the addition of ephedrine The use of cortisone, prednisone, or corticotropin is justified only in the severe cases

LEAD POISONING IN AN INFANT

To the Editor —*Can a 17-month-old infant have lead poisoning, as evidenced by lead lines at the epiphysial ends of the long bones, from inhalation of paint sprays?*

Joseph M Klein, M D , Wilkes-Barre, Pa

Answer —It is difficult to conceive of a 17-month-old infant having exposure to lead through the medium of paint sprays Few spray paints now contain lead, and, apart from industry, paint spraying usually is only an occasional activity A 17-month-old infant could have lead poisoning, but currently the common source is scaled-off lead paint from interior woodwork in homes The best means for diagnosis resides in quantitative lead determinations in blood and urine Epiphysial line abnormalities may be present but are not diagnostic of lead deposition Similar x-ray disclosures may arise in healing rickets and in connection with restoration of calcium level after other nutritional disorders If the epiphysial line abnormalities are present and if an exposure to lead has been established, then such bony changes could result from the deposition of lead compounds in the epiphysial areas In addition, some changes may arise at the margins of flat bones Rings of modified bony density may appear in the ossification centers of cartilage The intensity or breadth of the bands or lines is influenced to some degree by the duration of lead exposure and the quantity of lead taken into the body Diagnostic methods other than these x-ray changes should be pursued

OSTEOARTHRITIS OF THE KNEE

To the Editor —*Please supply information on the latest treatment of osteoarthritis of the knee joints and lower lumbar region of the back A patient, aged 72 years, was hospitalized two months ago for severe pain in the back and knee joint after a slight fall X-rays showed some pinching of fourth lumbar nerve and moderate changes in the knee joint due to changes in bone structure from this arthritis The patient's laboratory blood tests were negative, except for some slight elevation in the sedimentation rate Her kidneys and heart appeared normal Blood pressure was 160 to 170 mm Hg systolic After a two-week stay at the hospital, the patient's backache and pain in the knee joint disappeared Now she has some discomfort or slight shooting pain in the knee joint, about an area of 3 sq in at the inner portion of knee joint, and some tenderness of the fourth lumbar nerve from the inside of the thigh to the knee joint Most of the pain is at the inner portion of the knee joint, and there is some inflammation around this joint This trouble began the middle of September, 1956, and at the time of writing there has not been any change in this condition in the last 14 weeks The patient has been receiving infrared treatment with hot compresses*

M D , Connecticut

Answer —Osteoarthritis of the knees may be treated effectively and with marked relief of symptoms by injecting hydrocortisone into the joints This can be done without local anesthesia A 24-gauge, 2-in needle should be used It should be introduced at the anterior medial margin of the knee joint The point of the needle should be within the joint Two cubic centimeters of hydrocortisone should be injected into each joint Each injection should be followed by a program of restricted activity This means that the patient should not do any walking that is not essential to her daily activities She should have the infrared treatment or the application of moist heat and massage to the knees daily

The backache and irritation of the fourth lumbar nerve root will be helped by sleeping in the "contour" or Williams position Most furniture dealers can sup ply the contour chair A hospital bed with a Gatch frame can be rented and adjusted for sleeping so that the hips and knees are flexed 35 degrees and the shoulder or back rest is elevated to an angle of 35 degrees This position relaxes the ligamentous structures of the lower back, enlarges the neural foramens, and relieves crowding or pinching of the fourth nerve root The application of heat and massage to the lower back is of value in dealing with backache of this type Treatment with infrared heat or hot compresses should be followed by massage

ALLERGY TO THYROID MEDICATION

To the Editor —*A patient had a subtotal thyroidectomy in 1953 because of a benign adenoma Shortly thereafter her hair and skin became very dry and her nails brittle, and there was marked puffiness of the lower lids Dessicated thyroid extract, 3 grains (0 2 Gm) daily, relieved the condition, but about six months ago she developed a severe case of allergic rhinitis This was relieved somewhat by withdrawal of the thyroid extract, and it promptly recurred when administration of the thyroid extract was started again Since then she has been taking sodium levothyroxine (Synthroid), 0 2 mg , with considerable relief of the rhinitis and of the puffiness of the lids and the dryness of the skin, but her hair is very dry and difficult to wave Any general information as regards treatment will be greatly appreciated What are the relative values of the basal metabolism test and the serum protein-bound iodine determination? Are there any particular indications for either or both?*

Erwin E Stephens, M D , Redlands, Calif

Answer —The clinical symptoms appearing after a subtotal thyroidectomy certainly suggest a hypothyroid state, and the relief of symptoms after administration of thyroid extract and sodium levothyroxine support this conclusion If laboratory confirmation of the hypothyroidism is desired this can be accomplished best by a determination of the serum protein-bound iodine level after all specific medication has been discontinued for about one month Values below 3 5 mcg per 100 ml suggest hypothyroidism An elevated cholesterol level is also to be expected The protein-bound iodine determination is probably of greater value than the basal metabolism rate Techniques using radioactive iodine are not generally of great use in suspected hypothyroid states If thyroid extract or thyroxine are used in treatment, the protein-bound iodine determination can be used to control the dosage level If triiodothyronine is used, the protein-bound iodine levels are not raised by the drug, although the hypothyroidism is relieved

Allergic reactions to thyroid extract are very infrequent but may occur It is possible that a change in the brand used may give relief, or an antihistaminic drug may be given to suppress the allergic response There are no special suggestions with regard to the dryness of the hair if sufficient thyroid is given to control the other symptoms of hypothyroidism

TOXICITY OF ANTIHISTAMINICS

To the Editor —*Please supply information concerning a certain patent cough medicine that contains the following ingredients per fluid ounce Phenylpropanolamine hydrochloride, 1 grain (60 mg), methapyrilene fumarate, 1 5 grains (0 1 Gm), sodium salicylate, 20 grains (1 2 Gm), ammonium chloride, 10 grains (0 6 Gm), chloroform, 2 min , and alcohol, 6% A patient, who was seven and one-half months pregnant, took this preparation for two days preceding an intrauterine death in the following amounts 4 tsp the first day and 3 tsp the second day Is there any material in this preparation sufficiently toxic to cause fetal death?*

A D Heetderks, M D , Bozeman, Mont

Answer —Methapyrilene fumarate is an antihistaminic agent of relatively low toxicity with few if any, undesirable side-reactions It also possesses mild local anesthetic properties There have been no reported cases of fetal death after maternal ingestion of this substance Accidental ingestion of 100 mg by a 16-month old child resulted in death presumably secondary to nephron nephrosis The patient mentioned in the inquiry received 45 mg the first day and 34 mg the second This dosage is well below that recommended therapeutically, a maximum dose not to exceed 400 mg per 24 hours

Phenylpropanolamine hydrochloride is an ephedrine-like compound having longer vasoconstrictor action than ephedrine but less likelihood of producing excitation and nervousness The recommended dose for adults is 25 to 50 mg every three or four hours The patient in question received 30 mg the first day and 20 mg the second day The other ingredients contained in this cough medicine, namely, sodium salicylate, ammonium chloride, chloroform, and ethyl alcohol, are not considered toxic in the doses involved here In the absence of a severe sensitivity reaction in the mother, as manifested by cyanosis, convulsions, or cardiorespiratory depression, it is exceedingly unlikely that there was any cause-and-effect relationship between the ingestion of the cough medicine and the subsequent fetal death

SENSITIVITY TO THIOGLYCOLATE

To the Editor —*A patient developed acute glomerulonephritis Her previous health was good, and there was no evidence of possible infectious origin The patient handles beauty products in her work (for example, cold-wave preparations and dyes), some of which have been considered as possible chemicals injurious to the kidneys What are the active ingredients of these agents, and what is the occupational hazard, if any, of using them constantly?*

Joseph Aspel, M D , Philadelphia

Answer —At the present time the greater number of cold-wave solutions represent thioglycolates or some compound of thioglycolic acid No cold-wave solution may be expected to be the direct cause of infections The greater portion of investigative work centering about thioglycolates and cold-wave solutions has re-limited to home permanents, thus involving fairly weak concentrations of such substances as the sodium or the ammonium thioglycolate. Such watery solutions approximate 3 to 5%. Apart from some possibility of skin sensitization, it is not known that this strength of cold-wave solution has been proved to be detrimental to the home user on either a local or a systemic basis. The situation as to the professional applicator of cold-wave solutions may be different. The strength of solution may be appreciably higher, and obviously exposure may be repeated during the day, and certainly many times during the week or month, for many operators.

Although the sensitizing properties of the thioglycolates are low, some sensitization has been established. In the midst of conflicting claims, statements by Brunner (*A. M. A. Arch. Dermat. & Syph.* 65: 316-326 [March] 1952) are impressive: "Ammonium thioglycolate has an exceptionally low sensitizing index; in general, where sensitization does develop it is of the eczematous-contact-dermatitis type. Hair damage may occur in some instances in which the hair has been previously altered by dyes and bleaches, particularly when directions for use are not followed and over-long processing times are employed. Such damage is apparently limited to the hair shaft, and no inhibition of growth is observable. Direct systemic toxic manifestations were not seen after percutaneous application of ammonium thioglycolate." The professional beauty-parlor operator consistently is exposed to many chemicals other than the thioglycolates, such as sodium bromate employed as the neutralizer for the thioglycolate waving solution. The multiplicity of exposures makes it difficult to establish any precise offender, particularly as to sensitization or direct skin irritation.

ANDROGEN-ESTROGEN THERAPY

To THE EDITOR:—*Should a man past 76 years of age, who had a transurethral resection 10 years previously and who is without present sexual desire (a condition which has existed for several years) take a capsule containing methyltestosterone, 1.67 mg., and Theelin, 0.167 mg., three times a day?*

M. L. Brakebill, M.D., Sharon Springs, Kan.

This inquiry has been referred to two consultants, whose respective replies follow.—ED.

ANSWER.—Combined androgen-estrogen therapy may be beneficial to a man 76 years old in relieving nervous symptoms, fatigue, and depression. Such therapy may promote storage of calcium, phosphorus, and protein. Hormone treatment, however, is not often successful in restoring libido or potency. When such treatment is used in elderly patients, it is usually best to carefully explain to the patient that the treatment is employed to promote general strength and health and is not intended specifically to increase sexual desire or performance.

ANSWER.—There can be no harm in a man past 76 years of age taking a capsule containing methyltestosterone, 1.67 mg., and Theelin, 0.167 mg., three times a day. The amounts are so small that they probably would not do him any harm. However, it has been discovered that the activity of prostatic malignancy is affected by the intensity of androgenic stimulation, and should this man have such a nidus, it is strongly advised that no androgenic therapy be used, no matter how small the dose is. A local medical man should examine the patient's prostate at frequent intervals to note whether there is any change in consistency of the gland.

COEXISTENCE OF INTRAUTERINE AND EXTRAUTERINE PREGNANCY

To THE EDITOR:—*A 37-year-old patient was recently operated on for a ruptured ectopic pregnancy of the left tube because of severe hemorrhage. She also had a uterine pregnancy of the same gestation. A subtotal hysterectomy, with removal of the fetus, was done to acquire positive control of the bleeding. What is the frequency of twin uterine and extrauterine pregnancy?*

W. C. Dodds, M.D., Detroit Lakes, Minn.

ANSWER.—The coexistence of intrauterine and extrauterine pregnancy is not common. Reeves and Savarese (*Obst. & Gynec.* 4: 492, 1954) state that there are 421 cases of simultaneous intrauterine and extrauterine pregnancies reported in the literature. It is important to differentiate "combined" from "compound" intrauterine and extrauterine pregnancy. "Combined" intrauterine and extrauterine pregnancy means the existence of simultaneous pregnancies, whereas "compound" intrauterine and extrauterine pregnancy refers to the superimposition of an intrauterine pregnancy on a previous extrauterine pregnancy, generally a lithopedion.

TREATMENT OF HEMANGIOMA

To THE EDITOR:—*A 4 year-old girl has a recurrent strawberry hemangioma on her forearm. This was present at birth and was increasing in size until she was one year old, at which time it was treated with radium and completely disappeared. There are now streaks of apparent recurrent hemangioma appearing in the old scar (the old scar is a pale area in the* [illegible] *in diameter). Should this recurrent* [illegible]*ed or observed with hopes for its* [illegible]*sappearance?*

John S. Argue, M.D., Pittsfield, N. H.

ANSWER.—From the description, immediate treatment is not imperative. In a patient 4 years of age, such lesions are not particularly responsive to radiation or cryotherapy. Injection of sclerosing substances should not be used unless the lesion is cavernous and deep. Therefore, surgical excision is the only possible treatment, and this can be performed at any time. From the description (pale scar with streaks of apparent recurrent hemangioma), however, one must consider the possibility of a developing radiodermatitis with telangiectasia. If this is the situation, excision at this time is indicated.

« Washington News »

House Hearing Gets Data on Filter Cigarettes • •
Food Additives to Be Discussed by Scientists • •
Folsom Considers Research Evaluation • •
AFL-CIO Explains Catastrophic Coverage Policy • •

A M A TESTIFIES ON CIGARETTE FILTER EFFECTIVENESS

A House subcommittee, attempting to learn if manufacturers are using misleading claims of effectiveness to sell filter cigarettes, has received some pertinent scientific testimony from an expert representing the American Medical Association, Walter Wolman (Ph D), Director of the A M A 's Chemical Laboratory

Dr Wolman was one of a number of researchers heard by the committee, including spokesmen for tobacco companies, the American Cancer Society, representatives from several universities, and federal medical officials Also appearing was a spokesman for Consumers' Union

Dr Wolman described a series of studies made by the A M A laboratory on the nicotine and tars in several types of cigarettes and the effectiveness of various filters The tests were conducted during 1952, 1953, and 1954, and all findings subsequently were published in THE JOURNAL

The tests showed, Dr Wolman testified, that among the six filters used in the first series of experiments, the percentage of nicotine removed ranged from 9 to 60% and tar removed, from 5 to 55%

The second report, concerned with two "denicotinized cigarettes" and one made from low-nicotine tobacco, showed all three tobaccos had about 1% nicotine in contrast to 1 8% in other tobaccos, the nicotine content of one wos 0 3%, but it also contained 0 45% of a nicotine-like alkaloid, the tar contents of two brands were about the same as other tobaccos

The third report, giving the findings of tests on filter holders for cigarettes, showed two metal trap type holders reduced nicotine 5 and 4% respectively, and tar content 8 and 11% A holder employing cylindrical paper filters with small paper baffles reduced nicotine 7% and tar 9% Holder no 4, with a plastic cylinder filled with granules of silica for a filter, cut nicotine 14% and tars 21% The holder using an inserted cigarette as a filter reduced nicotine and tar contents both by about 41%

Dr Wolman also described the final report of the series, devoted to regular and king-size cigarettes and the additional filter-tip cigarettes that had appeared on the market since the first study was made Among other results, these tests showed that if a king-size is smoked only the same amount as a regular cigarette, the longer butt filters out more nicotine and tars, but if it is smoked to the same size butt as a regular cigarette, more nicotine and tars get into the smoke The subcommittee was given a code to identify the brands tested

A sampling of testimony from other witnesses during the two weeks of testimony

E Cuyler Hammond (D Sc) of the American Cancer Society, who traced medical and statistical evidence, accumulating since 1915, that he said pointed to heavy cigarette smoking as a definite health hazard, particularly in lung cancer He told of the survey of 22,000 volunteer members of the American Cancer Society, which he and Dr Daniel Horn presented at the A M A 's June meeting However, he was not able to draw from the survey any information about the effectiveness of filters, as they were not used extensively when the survey started

Dr Ernest Wynder, of the Sloan-Kettering Institute for Cancer Research, said about 25,000 persons will die of lung cancer this year, but that 80% of the deaths could have been prevented had the patients not smoked Of the filter cigarettes, he said the majority currently on the market 'have a tar and nicotine content at least as high, if not higher, than standard regular sized cigarettes " However, Dr Wynder thought a "partial answer might be a filter cigarette, with good tobacco taste, that has 40% less nicotine and tar than other unfiltered cigarettes "

Dr R H Rigdon, pathology professor at the University of Texas Medical Branch, Galveston, challenged the accuracy of diagnosis of cancer of the lung records without autopsy, adding "The alleged relation of tobacco to lung cancer is an old story Scientific men in the past have been just as interested in establishing the cause of lung cancer as we are today They have carefully considered smoking as a possible cause, however, it was never established "

Dr Clarence Cook Little (D Sc), chairman of the scientific advisory board of the Tobacco Industry's Research Committee, also disagreed with the statistical conclusions that cigarette smoking is a cause of cancer He explained the tobacco industry was sponsoring a wide range of cancer studies, not limiting them to the effects of tobacco He said periodic reports would be made on findings He had no specific scientific information for the subcommittee on the effectiveness of filters in protecting health

PANEL HEARINGS SCHEDULED ON FOOD ADDITIVES

The next step in the long history of proposed bills regulating chemical and other food additives will be taken Aug 6 and 7 when the health subcommittee of the House Interstate Committee holds a panel session on the purely scientific aspects of additives Patterned after the Salk poliomyelitis vaccine hearings of several years ago, the session will be divorced from any legal or legislative aspects

Chairman Williams wants the panel of experts to go into the scientific problems involved in testing and evaluating the safety of additives Panel chairman will be Dr William J Darby of Nashville, Tenn , head of the department of biochemistry and director of the nutrition department of Vanderbilt School of Medicine He also is a member of the American Medical Association Council on Foods and Nutrition and is chairman of the food protection committee of the National Academy of Sciences Food and Nutrition Board

Several scientific witnesses were heard during the regular sessions on pending bills R Blackwell Smith Jr , Ph D , president, Medical College of Virginia, expressed the view that chemical compounds used in foods cannot be assessed successfully without acute, subacute, and chronic tests on rats Even then, he said, such tests can only approach reasonable safety Francis E Ray of the University of Florida said he was opposed to putting anything in foods that had been shown to be cancer-producing

LIST OF STATE MEDICAL ASSOCIATIONS

SOCIETY	PRESIDENT	EXECUTIVE OFFICER	ANNUAL MEETING
Alabama Med Assn of the State of	John A Martin Montgomery	D L Cannon, P O Box 1788 Montgomery 4	Montgomery Apr 17 19
Alaska Territorial Medical Assn	Louis Salazar Ketchikan	Robert B Wilkins 1121 Fourth Ave Anchorage	
Arizona Medical Association	Carlos C Craig Phoenix	Leslie B Smith 826 Security Bldg Phoenix	Chandler Apr 30-May 3
Arkansas Medical Society	T Duel Brown Little Rock	Mr Paul C Schaefer 215 Kelley Bldg Ft Smith	Hot Springs May 4-6
California Medical Association	Frank A MacDonald Sacramento 14	Mr John Hunton 450 Sutter St San Francisco 8	Los Angeles Apr 27-30
Colorado State Medical Society	George R Buck Denver	Mr H T Sethman 835 Republic Bldg Denver 2	Denver Sept 24 27
Connecticut State Medical Society	W Bradford Walker Cornwall	Creighton Barker 160 St Ronan St New Haven	
Delaware Medical Society of	Roger W Murray Wilmington	N L Cannon 621 Delaware Ave Wilmington	Wilmington Oct 21 [illegible]
District of Columbia Med Soc of	James W Watts Washington 6	Mr T Wiprud 1718 M St N W Washington 6	Washington May 7
Florida Medical Association	William C Roberts Panama City	Samuel M Day P O Box 2411 Jacksonville 1	
Georgia Medical Association of	W Bruce Schaefer Toccoa	Mr M D Krueger 875 W Peachtree St N E Atlanta	Macon Apr 27 30
Hawaii Medical Association	Samuel L Yee Honolulu	Satoru Nishijima 510 S Beretania St Honolulu	Honolulu May 1 3
Idaho State Medical Association	Charles A Terhune Burley	Mr Armand L Bird 364 Sonna Bldg Boise	
Illinois State Medical Society	Lester R Reavley Sterling	Harold M Camp 224 S Main St Monmouth	Chicago May 20-23
Indiana State Medical Association	Elton R Clarke Kokomo	Mr James A Waggener 23 E Ohio St Indianapolis 4	French Lick Oct 6-9
Iowa State Medical Society	Fred Sternagel West Des Moines	R F Birge 529 36th St Des Moines 12	Des Moines Apr 20-23
Isthmian Canal Zone Med Assn of	Charles O Bruce Balboa Heights	Frank P Smith Box E Balboa Heights	
Kansas Medical Society	Barrett A Nelson Manhattan	Mr Oliver E Ebel 315 W Fourth St Topeka	Kansas City May 4-8
Kentucky State Medical Association	Richard R Slucher Louisville	Mr J P Sanford 620 S Third St Louisville 2	Louisville Sept 17 19
Louisiana State Medical Society	H Ashton Thomas New Orleans 12	C Grenes Cole 1430 Tulane Ave New Orleans 12	Shreveport May 5-7
Maine Medical Association	Armand Albert Van Buren	D F Hanley Coe Infirm Bowdoin Coll Brunswick	
Maryland Med and Chir Faculty of	C Reid Edwards Baltimore	Everett S Diggs 1211 Cathedral St Baltimore	
Massachusetts Medical Society	Patrick J Sullivan Dalton	Robert W Buck 22 The Fenway Boston 15	Boston May 20-22
Michigan State Medical Society	Arch Walls Detroit	L F Foster 606 Townsend St Lansing 15	Grand Rapids Sept 2[illegible]
Minnesota State Medical Association	J Arnold Bargen Rochester	Mr R R Rosell 496 Lowry Med Arts Bldg St Paul 2	Duluth June
Mississippi State Medical Association	Howard A Nelson Greenwood	Mr R B Kennedy P O Box 4322 Jackson	Jackson May 13-15
Missouri State Medical Association	W S Sewell Springfield	E Royse Bohrer 634 N Grand Blvd St Louis 3	St Louis Apr 13-16
Montana Medical Association	Edward S Murphy Missoula	Mr L R Hegland P O Box 1692 Billings	Missoula Sept 19-21
Nebraska State Medical Association	R Russell Best Omaha	R B Adams 1315 Sharp Bldg Lincoln 8	
Nevada State Medical Association	Edwin Cantlon Reno	Mr Nelson B Neff P O Box 188 Reno	Las Vegas Sept 25-28
New Hampshire Medical Society	Leroy S Ford Keene	W H Butterfield 18 School St Concord	Dixville Notch Sept 14 16
New Jersey Medical Society of	Albert B Kump Bridgeton	Mr Richard I Nevin 315 W State St Trenton 8	Atlantic City May 17 21
New Mexico Medical Society	Samuel R Ziegler Espanola	Mr R R Marshall 221 W Central Ave Albuquerque	Albuquerque May 14 16
New York Med Soc of the State of	Thurman B Givan Brooklyn	W P Anderton 386 Fourth Ave New York 16	New York City May 12 16
N Carolina Med Soc of the State of	Edward W Schoenheit Asheville	Mr James T Barnes 203 Capitol Club Bldg Raleigh	Asheville May 4 7
North Dakota State Medical Assn	R W Rodgers Dickinson	Mr Lyle Limond Box 1198 Bismarck	Minot May 3-6
Ohio State Medical Association	Robert S Martin Zanesville	Mr C S Nelson 79 East State St Columbus 15	Cincinnati Apr 15-17
Oklahoma State Medical Association	John F Burton Oklahoma City	Mr R H Graham P O Box 9696 Shartel Station Okla City	Oklahoma City May 4 7
Oregon State Medical Society	Russell H Kaufman Portland	R R Carter 1115 S W Taylor St Portland 5	Portland Oct 2 5
Pennsylvania Med Soc of State of	Elmer G Shelley North East	H B Gardner 230 State St Harrisburg	Pittsburgh Sept 15-20
Puerto Rico Medical Association	Guillermo Pico Santurce 29	Mr J A Sanchez Box 9111 Santurce	Santurce Nov 19-23
Rhode Island Medical Society	Charles L Farrell Pawtucket	Thomas Perry Jr 154 Watterman St Providence 6	
South Carolina Medical Association	D Lesesne Smith Spartanburg	Mr M L Meadors 120 W Cheves St Florence	Myrtle Beach May 13-15
South Dakota State Medical Assn	M M Morrissey Pierre	Mr J C Foster 1st Nat l Bank Bldg Sioux Falls	Huron May 17 20
Tennessee State Medical Association	J Paul Baird Dyersburg	Mr Jack E Ballentine 112 Louise Ave , Nashville 5	Gatlinburg Apr 20-23
Texas Medical Association	Denton Kerr Houston	Mr C L Williston, 1801 N Lamar Blvd Austin	Houston Apr 19-23
Utah State Medical Association	James Z Davis Salt Lake City	Mr H Bowman 42 S Fifth East St Salt Lake City 2	Salt Lake City Sept 5-7
Vermont State Medical Society	Phillip H Wheeler Brattleboro	Robert L Richards 128 Merchants Row Rutland	Dixville Notch N H , Sept 14 17
Virginia Medical Society of	J D Hagood Clover	Mr R I Howard 1105 W Franklin St Richmond 20	Washington D C Oct 27-30
Washington State Medical Assn	James H Berge Seattle	Frederick A Tucker 1309 Seventh Ave Seattle 1	Seattle Sept 15-18
West Virginia State Medical Assn	E Lyle Gage Bluefield	Mr Charles Lively Box 1031 Charleston 24	W Sulphur Springs Aug 22 24
Wisconsin State Medical Society of	H E Kasten Beloit	Mr C H Crownhart P O 1109 Madison 1	Milwaukee May 6-8
Wyoming State Medical Society	H B Anderson Casper	Mr Arthur Abbey Box 2036 Cheyenne	Moran June 9 12

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1 Coan J P., McAlpine, J C. and Boone, J A. J South Carolina M. A. 51:417 (Dec.) 1955

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ROLE OF THE GENERAL PRACTITIONER IN PREVENTION OF BLINDNESS

Andrew de Roetth, M D , Spokane, Wash
and
Purman Dorman, M D , Seattle

• *The relative importance of various causes of blindness has varied through the years Since 1900 there has been a steady decline in the percentage of cases of blindness ascribed to infectious diseases, including gonorrhea This decline is largely explained by the advent of antibiotics Retrolental fibroplasia reached a peak in 1952 and declined promptly when it was recognized as a manifestation of oxygen poisoning Cataract has increased steadily, treatment has improved, but the cause remains unknown and the number of people attaining the cataract age has increased Corticosteroids have caused irreversible damage in some cases of herpes simplex of the cornea and are specifically contraindicated in that condition, they are valuable, however, in the prevention of sympathetic ophthalmia, which used to be a major risk after eye injuries Trauma has continued to be an important cause of blindness emphasis needs to be placed on protective measures and prompt treatment Research on the ocular complications of systemic disease and on the etiology of glaucoma is particularly important because these two factors together still account for about one fifth of all cases of blindness*

Have the causes of blindness changed? The doctor in general practice realizes, just as does he who limits his work to the eye, that consideration of blindness is changing constantly Yesterday some became blind for reasons seldom seen today Tomorrow different causes of blindness may appear It is for us to review conditions of yesterday in order to be prepared for tomorrow

An astonishing improvement has been gained by the use of some of the new wonder drugs Medicaments, including various sulfonamides, the antibiotics, and corticosteroids, have often prevented blindness due to infection, while improved methods of treatment have prevented many other possible causes of blindness Yet at the same time these new drugs have brought dangers Some of these dangers have been the systemic reactions such as blood dyscrasias, while in other instances when corticosteroids have been used in herpetic corneal disease, the end-result has not always been improvement Instead, it may have been a large corneal scar, with marked loss of vision Another instance of recent, dramatic change within medical practice has been the reduction of the amount of oxygen given to premature babies, because it has been found that high concentration of oxygen is responsible for retrolental fibroplasia

Statistics

The blind population in the United States has been estimated in 1956 to be about 334,000 by the National Society for the Prevention of Blindness [1] Each year some 27,000 more persons join that population Their blindness has been defined as 'economic blindness, with the best corrected vision in the better eye being 20/200 or less or with a good central vision but marked constriction of the visual fields Although, because of some deaths, 27,000 persons are not added yearly to the original 334,000, the problem still is one about which the physician in general practice may well be concerned

For this paper, data from 1900 on have been obtained However, because of the lack of an exact classification of the causes of blindness in the early reviews on the subject, four surveys have been used for comparison these cover the years 1940, 1950, 1939, and 1951 through 1955 Data regarding the estimated number of blind in the United States in each of the various classifications of the causes of blindness in 1940 and in 1950 came from material from the National Society for the Prevention of Blindness [2] The data for 1939 came from a survey of the recipients of assistance to the blind in the state of Washington in 1939 [3] The 1940 and 1950 surveys by the National Society for the

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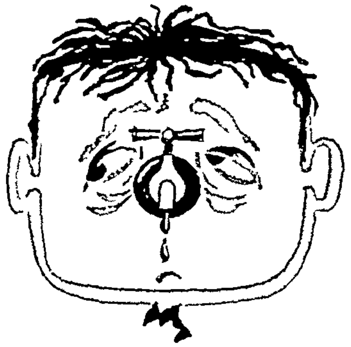
Read at the 10th Clinical Meeting of the American Medical Association Seattle, Nov 30, 1956

in hay fever



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MAGAZINE—TELEVISION REPORT

The following list of current medical articles in mass circulation magazines on medical subjects is published each week only for the information of readers of THE JOURNAL *Unless specifically stated, the American Medical Association neither approves nor disapproves of the articles reported*

MAGAZINES

Harper's Magazine, August, 1957

The Influenza Epidemic,' by David D Rutstein, M D

Discussing the influenza epidemic which recently flared up in the Far East, Dr Rutstein, although not able to give the exact answer, addresses himself to the self-imposed question 'Will this epidemic burn itself out—or is it the forerunner of a world-wide plague which may kill millions of people before it dies away? The answer With proper planning we may be assured that modern scientific techniques, the new antibiotics, and a co-operative, informed population can minimize the effects of the pandemic whether it be one of mild or severe disease

Schizophrenia What We Are Finding Out About Our Worst Mental Illness,' by Ian Stevenson, M D

In the second of two articles on mental illness, Dr Stevenson comments on the nature of the disorder which seems to be a combination of both psychic and somatic factors 'Schizophrenia is to a great extent a penalty of our social sins Like the threat of atomic warfare, it may be one of the terrible and too expensive prices we pay for advancing in the direction we have so far chosen'

Reader's Digest, August, 1957

Wanted—and Available—Filter-Tips That Really Filter, by Lois Mattox Miller and James Monahan

In the second of two articles the authors report on the results of sleuthing in the cigarette industry They find that better cigarette filters are available They suggest that Congress may have to pass legislation which would require cigarette manufacturers to analyze the mainstream smoke of their product and print on the label the percentage of tar and nicotine contained The law would also require manufacturers to reveal any change made in the brand's blending process, to stick to scientifically substantiated truth in advertising claims, and to face a federal court injunction for the dissemination of false or misleading information None of the authors recommendations seems designed to please the already frustrated tobacco industry

Eye Care Up-to date, by Paul W Kearney

Condensed from an article previously reported in this column when it appeared in Better Homes and Gardens *the recommendations for safer and more comfortable vision are well taken*

Good Housekeeping, August, 1957

The Mystery of the Thymus Gland, by L Emmett Holt Jr, M D

The author concludes a discussion of several theories with And we still don't know the function of the thymus gland

Are You Afraid You're Going Crazy? by Walter C Alvarez, M D

Dr Alvarez explains that many aches and pains can be traced to a patient's fear of insanity

The Saturday Evening Post, July 27, 1957

The Terrible Threat of Nerve Gas, by John Kobler

A long search for antidotes for deadly nerve gas will conclude with tests on humans according to the article

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ROLE OF THE GENERAL PRACTITIONER IN PREVENTION OF BLINDNESS

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and
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• *The relative importance of various causes of blindness has varied through the years Since 1900 there has been a steady decline in the percentage of cases of blindness ascribed to infectious diseases, including gonorrhea This decline is largely explained by the advent of antibiotics Retrolental fibroplasia reached a peak in 1952 and declined promptly when it was recognized as a manifestation of oxygen poisoning Cataract has increased steadily, treatment has improved, but the cause remains unknown and the number of people attaining the cataract age has increased Corticosteroids have caused irreversible damage in some cases of herpes simplex of the cornea and are specifically contraindicated in that condition, they are valuable, however, in the prevention of sympathetic ophthalmia, which used to be a major risk after eye injuries Trauma has continued to be an important cause of blindness emphasis needs to be placed on protective measures and prompt treatment Research on the ocular complications of systemic disease and on the etiology of glaucoma is particularly important because these two factors together still account for about one fifth of all cases of blindness*

Have the causes of blindness changed? The doctor in general practice realizes, just as does he who limits his work to the eye, that consideration of blindness is changing constantly Yesterday some became blind for reasons seldom seen today Tomorrow different causes of blindness may appear It is for us to review conditions of yesterday in order to be prepared for tomorrow

An astonishing improvement has been gained by the use of some of the new wonder drugs Medicaments, including various sulfonamides, the antibiotics, and corticosteroids, have often prevented blindness due to infection, while improved methods of treatment have prevented many other possible causes of blindness Yet at the same time these new drugs have brought dangers Some of these dangers have been the systemic reactions such as blood dyscrasias, while in other instances when corticosteroids have been used in herpetic corneal disease, the end-result has not always been improvement Instead, it may have been a large corneal scar, with marked loss of vision Another instance of recent, dramatic change within medical practice has been the reduction of the amount of oxygen given to premature babies, because it has been found that high concentration of oxygen is responsible for retrolental fibroplasia

Statistics

The blind population in the United States has been estimated in 1956 to be about 334,000 by the National Society for the Prevention of Blindness [1] Each year some 27,000 more persons join that population Their blindness has been defined as 'economic blindness, with the best corrected vision in the better eye being 20/200 or less or with a good central vision but marked constriction of the visual fields Although, because of some deaths, 27,000 persons are not added yearly to the original 334,000, the problem still is one about which the physician in general practice may well be concerned

For this paper, data from 1900 on have been obtained However, because of the lack of an exact classification of the causes of blindness in the early reviews on the subject, four surveys have been used for comparison these cover the years 1940, 1950, 1939, and 1951 through 1955 Data regarding the estimated number of blind in the United States in each of the various classifications of the causes of blindness in 1940 and in 1950 came from material from the National Society for the Prevention of Blindness [2] The data for 1939 came from a survey of the recipients of assistance to the blind in the state of Washington in 1939 [3] The 1940 and 1950 surveys by the National Society for the

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Read at the 10th Clinical Meeting of the American Medical Association, Seattle, Nov 30, 1956

Prevention of Blindness included all age groups, whereas the 1939 survey in the state of Washington included only adults.

Data for 1951 through 1955 came from our private offices and cover the cases of all 283 blind patients seen during that five-year period. Our statistics are not numerically comparable to those found in the other three surveys. However, they are a composite, regional representation, including all age groups in the various economic strata.

Causes of Blindness

Blindness and its causes have been considered under a nationally prepared classification, the Standard Classification for Causes of Blindness. As such, there are seven main classifications of causes: infectious diseases, trauma, neoplasms, general diseases, prenatal origin, causes unknown to medical science or not determinable by the physician, and poisonings (table 1).

Infection.—Blindness as a result of infectious diseases has been markedly altered. In 1885, diseases of the eyes, diagnosed as ophthalmia neonatorum, caused more than 10% of all blindness. Foote,[4] of the New York State Committee for the Prevention of Blindness, states that, about 1906, 28% of all children admitted to schools for the blind in New York state had their cause of blindness diagnosed as ophthalmia neonatorum. Because of varied reasons, some of the statistics around 1900 and even up to the present time are not as differentiated as might be desired. Due to changes in the classification of the causes of blindness, it is not always possible to accurately compare statistical data of various early years. Moreover, it is not correct to assume that the diagnosis of 1885 or 1906 of ophthalmia neonatorum meant a gonococcic conjunctivitis. Several types of conjunctivitis resemble each other and could lead to blindness.

TABLE 1.—*Percentage of Blindness in the Various Cause Classifications in Four Survey Periods, 1940, 1950, 1939, and 1951-1955*

Causes	Data from National Society for Prevention of Blindness 1940	Data from National Society for Prevention of Blindness 1950	Data from Washington State Blind Assistance 1939	Data from Our Private Offices 1951-1955
Infectious diseases	21.2	14.1	10.7	7.4
Trauma	8.8	7.2	7.6	6.4
Neoplasms	0.7	0.9	0.4	1.1
General diseases	5.1	9.6	5.9	11.7
Prenatal origin	9.5	11.3	6.3	17.3
Unknown to science	34.3	41.2	42.4	49.8
Cataract	16.5	21.9	24.3	29.3
Glaucoma	12.0	12.8	11.4	8.8
Undetermined by physician	20.0	15.3	23.5	2.1
Not specified			3.0	
Poisonings	0.4	0.4	0.2	4.2

The fact remains that many children were blind as a result of an eye infection and that a large number of such infections could be assumed to be gonococcic in origin. Yet improvements in diagnosis, preventive treatment, or treatment after infection had begun were so successful that by 1930-1931[4A] reports from all schools in New York state reporting their residence population showed that among 908 new entering pupils only 7.5% were blind because of ophthalmia neonatorum. Contrast that percentage with the survey published by Kerby[4A] in New York state in 1951 in which it was determined that only 1% of blindness in children was due to acute infectious conjunctivitis (ophthalmia neonatorum).

About 1935, authors such as Berens and co-workers[5] found that infectious diseases of all sorts, such as measles, syphilis, and trachoma, had caused about 28% of blindness in school-age children. Yet, in 1950, only 9% of children in schools for the blind were blind as a result of some type of infectious disease.

Trachoma has caused 1% of Egypt's population to become blind.[6] The disease has frequently responded to some of the sulfonamides or the antibiotics. Oddly enough, different strains of the trachoma virus in different countries have apparently caused a discrepancy in response to these newer drugs. Syphilis, when it involved the cornea as an interstitial keratitis, formerly caused much blindness, but now, after the introduction of neoarsphenamine and later the antibiotics, involvement of the cornea by syphilis has become a negligible factor. Optic atrophy associated with syphilis undoubtedly caused most of the 10.7% of blindness due to infectious diseases in the Washington survey of 1939 (table 1). In the 1940 and 1950 surveys of the National Society for the Prevention of Blindness, syphilis as a cause of blindness declined from 7.9% to 5.8%. Our survey reveals syphilis to be the cause of only 1% of blindness.

It is evident that infection has lost its previous eminent position as the cause of blindness. This is largely due to the treatment with the new drugs and cure of the primary systemic diseases such as syphilis and meningitis. Effects from gonococcic infections have been greatly subdued because of prenatal treatment of the mother, which has thus reduced infection within the birth canal, and the successful antibiotic treatment of any conjunctivitis seen after birth, which has thus made it possible to cure gonococcic conjunctivitis or other infections of the conjunctiva and cornea. Endogenous uveitis has been a condition to dread, for it has frequently resisted every considerable form of treatment. In spite of the use of every new drug, uveitis caused 3% of blindness in our survey, although, admittedly, some of the patients undoubtedly were afflicted before the advent of the antibiotics. Blindness due to sympathetic ophthalmia, which used to be a major risk with every eye injury, is now a rarity largely through the use of corticosteroids.

Herpes simplex virus infection of the cornea demands caution in its treatment. Many times the use of corticosteroids has been dangerous and has caused an irreversible damage. Locally applied corticosteroids will reduce the inflammatory response, thus causing congestion and edema to subside. The eye looks better, at first. The patient is relieved of discomfort, but soon the corneal infiltration involves the deeper layers of the stroma. The superficial dendriform keratitis changes into a so-called deep, intractable, metaherpetic keratitis. The preferred treatment is that of a caustic chemical or a heated cautery applied directly to the herpetic corneal lesion.

When properly selected, one of the antibiotics may cure almost every superficial, bacterial eye infection, provided the treatment is started in time. It is not feasible to culture material from the conjunctival secretion or corneal debris in every infected eye in order to isolate the offending organism and determine its sensitivity to antibiotics The routine, everyday office practice causes such a procedure not to be practical except in exceptional, stubborn cases Also, it has been noted that several strains of pathogenic bacteria, such as micrococcus (Staphylococcus) pyogenes var aureus, which is the most common pathogen invader of the conjunctiva, have developed a resistance to one or more of the antibiotics, particularly penicillin

Trauma—Trauma causes a great deal of blindness, though, fortunately, it usually involves only one eye Sympathetic ophthalmia used to be the major risk with every injury Thanks to the corticosteroids, such a development can be checked At this time, it is not amiss to repeat the timeworn warning, as good today as yesterday, that sharp-pointed pencils, knives, and scissors, glass, toys with sharp edges, and explosives should be kept from the hands of inquisitive children Even though the eyes represent only 1/600th of the body surface, injuries to the eyes create a serious handicap Eye injuries make up 3% of all industrial injuries

National statistics published in 1947[7] reveal that, of 20,000 persons who were blind and receiving assistance to the blind, 10% of them were blind because of injuries The Washington state survey of 1939 revealed 7 6% of blindness caused by trauma, our survey showed 6 4%, and the National Society for the Prevention of Blindness surveys of 1940 and 1950 showed 8 8% and 7 2% respectively (table 1) Industrial safety lenses of heat-tempered glass, plastic lenses, and many other eye safeguards have effectively contributed to the prevention of eye injuries

Neoplasms—Growths which involve either the eyeball or some portion of the various optic parts by direct growth within the eye or by pressure because of growth near the eye always have and always will cause a certain amount of blindness Though such neoplasms make up only 1% of the total causes of blindness (table 1), improvement in treatment is still in progress Retinoblastoma is bilateral in more than 25% of those afflicted with it Early recognition and x-ray treatment may save the child's sight as well as his life Every baby who has a routine examination should have his eyes examined with an ophthalmoscope by the family doctor so that this condition, if it exists, can be discovered in its early stage

In every case of esotropia (crossed eyes) or in every baby in whom there is a gray reflex behind the pupil, the disease should be considered In rare cases, melanoma can develop in an eye, though the other eye had been lost from some other cause Melanoma does not respond to x-ray, but, if the growth is small, sometimes it can be destroyed by radon seeds, which are attached to that portion of the sclera where the tumor is located Two such cases in which the partner eye was blind for another reason have been successfully treated by one of us (A de R)

General Diseases—In the fight against blindness an increased longer life expectancy is a handicap, inasmuch as more people then reach the age when arteriosclerosis, hypertension, nephritis, or diabetes have had time to damage the eye No wonder this cause increased from 5 1% to 9 6% in the 10-year period between the 1940 and the 1950 surveys of the National Society for the Prevention of Blindness In the survey from Washington state in 1939, this cause was 5 9% In our survey it amounted to 11 7%, with half being the result of diabetes (table 1)

Curiously enough, diabetes presents an anomaly This disease may exist for many years either under control or not under control, and the impairment within the eye may vary from none to complete blindness It has always been difficult to correlate why conditions develop within the eye in spite of a well controlled diabetic regimen Hemorrhages, for which some alteration in the blood vessel wall may be responsible, may occur into the retina or between the retina and the vitreous Because of the many irreversible damages which occasionally occur within the eye of a person with diabetes, the ophthalmologist always insists upon strict supervision by the attending physician At least two-thirds of patients with poorly treated or poorly controlled diabetes develop retinal changes after 20 years of illness Because only half as many develop changes if the diabetes is well controlled, there has never been the slightest question that the services of the attending physician must be constantly required to oversee the entire picture

Prenatal Origin—Some blindness may be hereditary, genotypic blindness, which, in turn, may be considered caused by a recessive or dominant trait At times, blindness may occur as a result of intrauterine damage to the fetus, which started to be normal but was injured by diseases of the mother that she acquired while carrying the baby Although it is possible to diagnose hereditary eye diseases, treatment as a means of prevention is difficult because of human nature and because the most dangerous diseases are those of the recessive trait group and we cannot determine which parent is the heterozygote, the carrier Furthermore, hereditary pigmentary degeneration of the retina, which almost invariably causes economic blindness in persons 50 years of age or more, is sometimes not diagnosed until after children have been born, by this time any of the children may be carriers, and the number of those who transmit the condition may have increased

Other recessive inherited traits which cause seriously debilitating eye conditions are albinism, congenital dislocation of the lens, heredodegeneration of the macula, and hereditary retrobulbar neuritis The inherited dominant traits which may lead to blindness are aniridia, coloboma of choroid, and corneal degeneration The type of inheritance of the most dangerous disease, retinoblastoma, is not always clear

It must be emphasized that some congenital malformations are not genetically determined As Ingalls[8] recently pointed out, some of them are manifestations on the fetus after critical stress, that is, after a physical or toxic-effect stress or stress from virus or x-ray effects, that the mother underwent during pregnancy A classic example is the congenital cataract of a child, the offspring of a mother who suffered from rubella during the first three months of pregnancy Hypoxia of the water in which a fertilized fish egg is growing may cause cyclopia, a fetal condition which occasionally occurs in a human baby

Because of human nature, it is probable that there always will be some blindness due to hereditary disease It has frequently been noted that proximity of visually handicapped persons to one another causes compassion and eventual marriage. Indeed, it is not at all uncommon to find a man burdened with a high degree of myopia, which is one of the more common hereditary visual defects, marrying a girl who also has either a high degree of myopia or possibly one of the several other hereditary disorders.

Table 1 shows that 9.5% of blindness was ascribed to prenatal origin by the National Society for the Prevention of Blindness in its 1940 survey. In its 1950 survey the figure was 11.3%. The corresponding per cent in the Washington state survey of 1939 was 6.3. Our survey figure was 17.3%. These total percentages, applying to causes of blindness of prenatal origin, include causes of congenital malformations that are both genetically and not genetically determined.

Cause Unknown to Medical Science.—Many persons have become blind yet do not present themselves for examination to a competent authority until after an interval of several years. Sometimes the cause of such blindness may be ascertained easily, sometimes the origin or cause is obscured by the complications which have developed later, such as a shrunken eyeball.

In spite of the tremendous advancement in medicine, many persons are wandering in a hazy twilight, with their cause of blindness being "unknown to science." Within that group of unknown causes would be senile cataract, glaucoma, and senile degenerative changes of the choroid and retina. Persons with such conditions have what aptly may be called the senile degenerative changes.

Cataracts. Cataracts have often prevented good vision for many persons and have produced complete blindness in others. It is surprising that the 1940 survey by the National Society for the Prevention of Blindness showed 16.5% of blindness due to cataract, while the 1950 survey showed 21.9%. In the Washington state survey of 1939 the per cent of blindness due to senile cataract was 24.3. Our survey showed 29.3% (table 1). Many of these persons could have been operated upon and the cataract removed from both eyes.

It is needless to recount the advances of technique in ocular surgery within the past 25 years. No longer is a person with a cataract advised to wait until he reaches the state of almost blindness or "ripeness of the cataract" before it is removed. Today cataract surgery is advisable as soon as uncorrected vision in the better eye lessens to a degree that life becomes uncomfortable. Surgeons vary in their opinion as to the exact amount of vision which should be present, but the marked reduction of vision to 20/200 is no longer justifiable. Of course, some persons may have other conditions within the eye that render it inadvisable to operate for cataract. Certain persons have a fear of surgical procedure. It should be stressed that age in itself is not a contraindication for cataract surgery. Approximately 90% of all those operated on obtain 90% vision or better as a final result.

Glaucoma. In spite of all efforts, glaucoma exacts a heavy toll. The 1940 and 1950 surveys of the National Society for the Prevention of Blindness revealed 12% and 12.8%, respectively, of blindness due to this disorder. Our survey showed 8.8%. The Washington state 1939 survey showed 11.4% (table 1). This disease seldom starts before the person is 40 years of age, however, with the life expectancy nearing 70, more persons will fall victim to the disorder.

Glaucoma is usually termed an eye disease, actually it is the result of a group of peculiar causes, leading to increased intraocular pressure. Contrary to most diseases which are accompanied by pain, the most deadly form of glaucoma is that which carries no pain and yet may terminate in the complete destruction of vision. The condition sometimes may be advanced, developing relentlessly before the patient is aware. This is true of chronic glaucoma, in which the eye is robbed progressively of a portion of the visual field. On the contrary, acute glaucoma lends itself readily to treatment. Pain as well as redness of the eyeball are among its chief features. The patient thus seeks advice.

Early discovery is the best way to prevent blindness from glaucoma, estimated to claim at least 4,000 persons yearly.[9] Surveys[10] of many persons living in Philadelphia, Wright-Patterson Air Force Base, Dayton, Ohio, Cleveland, and Portland, Ore., have shown that about 2% of the population more than 40 years of age have some form of glaucoma. This is too many. Dr. Conrad Berens has been one of the early, persistent advocates for the use of a tonometer on every person over 40 years of age who has a routine physical checkup. A Schiøtz tonometer measures the pressure within the eye. The procedure is somewhat akin to the test done during a general physical checkup when a measurement of blood pressure is obtained. If tension has been increased, the earlier it is controlled by the use of miotics the less possibility that glaucoma may progress to the stage where surgery may be needed.

Medical therapy of glaucoma produced a notable forward stride recently upon the introduction by B. Becker[10A] of acetazolamide (Diamox), a carbonic anhydrase. In two-thirds of those patients with increased intraocular pressure, full control may be obtained, possibly for a year or longer. Acetazolamide does not cure glaucoma, it merely controls the intraocular pressure without or with simultaneous use of miotics for a temporary period of time.

Degenerative Changes. When statistics for the National Society for the Prevention of Blindness surveys of 1940 and 1950 were prepared, causes of blindness unknown to science included, to mention a few, glaucoma, senile cataract, and myopia. The Washington state survey of 1939 grouped causes unknown to science, undetermined by physician, and not specified into one large category. Review of that large category by one of us (P. D.), who was also a co-author of the Washington state survey,[7] reveals a better division. Those causes unknown to science should be 665 in number, or 42.4%, those undetermined by physician should be 269, or 23.5%, and those not specified should be 49, or 3.0% (table 1). Certain of these causes develop in childhood, such as the refractive error of myopia. Some are the degenerative changes occurring as an accompaniment of age. Macular degeneration, idiopathic retinal detachment, and diffuse choroidal or retinal atrophy are such examples.

These changes are the senile changes of which we see many examples long before blindness arrives. For comparative purposes, this group has been isolated and found to compose 5.7% and 5.5% in the 1940 and 1950 surveys, respectively of the National Society for the Prevention of Blindness. Senile macular degeneration alone was responsible for 7.6% of blindness among our patients. Although senile macular degeneration, which is the likely aftermath of senile vascular change, cannot be prevented, psychological help may be given to those who have lost central vision by reassuring them that they will not lose their outside or peripheral vision, that vision which enables them to maneuver unaided around the streets or around the house. Retinal detachment has only a single treatment, surgery. Early diagnosis is essential but immediate surgery is the only treatment of value.

Poisonings.—Cases of blindness from poisoning have had a spectacular increase in number and an equally dramatic decline. Until 1942 poisoning as a cause of blindness was less than 0.5% with 0.4% noted in the 1940 as well as in the 1950 surveys of the National Society for the Prevention of Blindness and 2% noted in the Washington state survey of 1939 (table 1). Up to 1942 not a single child had been entered in schools for the blind as a result of poisoning.

In the years right after 1942, a number of premature babies were found to have developed a membrane directly behind the lens, a condition that usually resulted in total blindness. The cause was unknown, ascribed to almost 20 completely unrelated possibilities, such as unaccustomed light in the premature eye, vitamin deficiency, virus infection, and place of residence. About 1953, almost simultaneously and in widely separated areas of the world, it was discovered that high concentration of oxygen was harmful as much as it was helpful. Within the state of Washington, 137 children known to have retrolental fibroplasia, together with their birth dates, are listed in a table. In the same table are the total number of new births for that year based upon residence within the state.

Throughout the nation some 8 000 children are blind today as a result of the excess concentration of oxygen. Our survey reveals 11, or 4.2% (table 1), babies blind from retrolental fibroplasia. In a survey of 1948[11] there were 7 cases or 6.7% of retrolental fibroplasia among 96 blind persons. Kerby,[12] of the National Society for the Prevention of Blindness estimated that in the year 1950 retrolental fibroplasia was the cause of blindness in almost 50% of blind preschool-age children. Retrolental fibroplasia has accounted for almost all the tremendous increase in the blind school-population with only an occasional cause from poisoning due to some other source.

Difficulties in Classification of Causes of Blindness

To consider the difficulties of those authorities who are continually working on the Standard Classification of Causes of Blindness, it has been amusing to note what has happened in the case of retrolental fibroplasia. In the first years of its existence, it was believed that retrolental fibroplasia was of prenatal origin and probably was a fibrous growth within the vitreous. As a result of much research, the new revised classification will state that retrolental fibroplasia is an inflammation of the choroid and retina and that its cause is poisoning by excessive oxygen.

It has been interesting to note the development of this disease, together with its rise and fall. When the premature infant receives oxygen in high concentration, the retinal vessels may contract or close, when air with a normal amount of oxygen has been used later, the same retinal vessels have dilated, this being followed by a formation of numerous capillaries in the peripheral retina. An unusual edema develops, and later the retina becomes detached or a membrane may be formed behind the lens. If such a retrolental membrane develops, the disease condition no longer is reversible. Thanks to frequent eye examinations and the ability to see certain pathological changes, it was possible to recommend certain drastic changes of oxygen treatment, once the clue was found. It is hoped that retrolental fibroplasia as a cause of blindness is a thing of the past.

Comment

In review of table 1 it is obvious that three groups of the causes of blindness contain a particularly large number of persons: cause unknown to science, that due to prenatal origin, and that associated with general diseases. In causes unknown to science are included cataract, primary glaucoma, and senile macular degeneration, diseases occurring with overwhelming frequency in persons in the later middle-age group and in the senile. The survey by us showed that 45.5% were blind from these causes, while Sorsby's[11] statistics from England in 1953 revealed 59.7% blind from these causes. Blindness due either to prenatal or hereditary origin accounted for 17.3% in our survey (table 1). More blindness from general diseases must be expected because such disorders as diabetes, various vascular changes, and hypertension are companions of increased longer life expectancy.

TABLE 2.—*Total Number of Births and Number of Children with Retrolental Fibroplasia in Various Years in the State of Washington*

Year of Birth	Children Known to Have Retrolental Fibroplasia	New Births in Washington State
1946	8	51 941
1947	7	58 230
1948	15	55 460
1949	16	56 433
1950	17	55 755
1951	10	57 994
1952	29	61 436
1953	22	61 511
1954	10	62 703
1955	3	62 900
	137	

While the new antibacterial drugs have drastically reduced the number of persons blind as a result of infection, at the same time indiscriminate use of the corticosteroids is decried because of the danger of herpetic corneal infections. Safety measures and constant vigilance are necessary to prevent blindness from trauma. Because of the increased longer life expectancy, senile degenerative changes are increasing.

Blindness takes the largest toll at the two ends of the lifespan. In the first years of life blindness is caused by heredity and damage done to the developing fetus, while towards the later years of life systemic diseases and degeneration of the aging eyes cause blindness. Retrolental fibroplasia as a cause of blindness, a cause which must be paid for in many years of suffering and which will exact a heavy financial toll from a generation yet to come, had a spectacular rise and an equally dramatic decline, within 12 years, when its cause and prevention were discovered

In order to reduce further the incidence of blindness several suggestions are made greater interest in hereditary eye diseases, a warning to expectant mothers of the danger of stress, the careful administration of oxygen to the premature infant, and the judicious use of antibiotics Money spent on research has been returned with profit When research is directed toward preventing or ameliorating the degenerative changes which occur during later life years, a reward of comfort will be forthcoming

Some general diseases have eye complications, and these too will be helped by additional research Early detection of glaucoma is by far the best treatment, even though early detection means examining many persons carefully Industry has realized the value of protecting the eyes against injuries and treating infections promptly

1215 Fourth Ave (Dr Dorman)

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TRACHEOTOMY—INDICATIONS, ADVANTAGES, TECHNIQUES, COMPLICATIONS, AND RESULTS

ANALYSIS OF THREE HUNDRED TEN RECENT OPERATIONS

Major Thomas G Nelson
and
Col Warner F Bowers, (MC), U S Army

• *Tracheotomy is now recognized as a singularly effective means for removing retained secretions, for improving ventilation, and for obtaining physiological advantages in many different disease states, in addition to bypassing mechanical obstruction of the air way The indications for tracheotomy can be separated into two broad categories, mechanical and secretional ventilatory The benefits of tracheotomy in bypassing an obstruction are realized to a much greater degree if the operation is performed before severe obstruction develops The physiological improvements following tracheotomy are improvement of ventilatory efficiency and removal of secretions, as well as assistance to the patient with a reduced vital capacity, such as in spinal cord injury, polio myelitis, encephalitis, severe burns, and after extensive thoracic or abdominal operations*

Until recent years the chief indication for tracheotomy was to bypass a mechanical obstruction of the airway During the past decade, there has been a considerable shift in emphasis on the indications for the operation, which now is recognized as a singularly effective means for removing retained secretions, for improving ventilation, and for obtaining other physiological advantages in many different disease states[1] To determine if these changing concepts were reflected in our present management of all types of ventilatory deficiency, an analysis was made of 310 consecutive tracheotomies performed in 300 patients at Brooke Army Hospital during the period from January, 1947, to July, 1955

The range in age of the patients was from newborn to 82 years The three youngest patients were less than 36 hours old Ten per cent of the patients were less than 7 years of age and 10% were over 60 years of age The great majority were in the 20-to-45-year age range

In 1947, there were 9 tracheotomies performed, in 1948, 13, in 1949, 14, in 1950, 21, in 1951, 35, in 1952, 46, in 1953, 53, in 1954, 79, and in six months of 1955, 40 This gives a total of 310 Thus, there was a progres

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From the General Surgery Service, Brooke Army Hospital Fort Sam Houston Texas Colonel Bowers is now at Tripler Army Hospital Honolulu, Hawaii Major Nelson is now at 43rd M A S H Korea sive yearly increase in the number of operations performed, although the patient population of this institution showed no significant change during this time This increase was due mainly to the use of tracheotomy for its recently recognized advantages rather than for the time-honored indication of circumventing mechanical blockage of the airway Nearly all the classic as well as the newer indications were present in this group of patients In addition, certain lesser publicized uses for tracheotomy—in burns, spinal cord injury, anesthesia, respiratory resuscitation and thoracic surgery—were encountered

Indications

The indications for tracheotomy were separated into two broad categories, mechanical and secretional ventilatory obstruction, because of certain clear-cut clinical differences in the two types In the first group there were 148 operations performed on 140 patients to prevent or treat mechanical narrowing or obturation of the airway Fifty per cent of the operations were performed prophylactically before clinical obstruction of the airway existed In the second group there were 162 operations performed on 160 patients to prevent or correct secretional obstruction of the lower airway, to improve ventilation, and for other physiological advantages Sixty per cent of these operations were performed prophylactically

TABLE 1—*Comparison of Use of Tracheotomy for Mechanical Ventilatory Obstruction (MVO) and Secretional Ventilatory Obstruction (SVO) in 310 Operations (1947-1955)*

	Indication			
	MVO		SVO	
Year	No	%	No	%
1947	9	100	0	0
1948	12	92	1	8
1949	13	93	1	7
1950	16	76		24
1951	17	48	18	52
1952	20	44	25	56
1953	22	42	31	58
1954	29	37	50	63
1955	9	23	31	77
Total	162	48	148	52

6 months in 1955

Comparison of the number of tracheotomies performed each year for each of these two groups demonstrates clearly the increased use of the operation for secretional obstruction, with 162 (52%) of the operations being performed for this reason (table 1) Before 1951 there were only scattered instances in which tracheotomy was employed for secretional obstruction After that time this use became increasingly prevalent, until by 1955 it accounted for 77% of the tracheotomies in our group

Analysis of the distribution of tracheotomy by primary disease site (table 2) revealed that 163 operations were associated with diseases of the head and neck and 147 were associated with lesions of the central nervous system and chest Of the entire 310 operations, only 70 were related to involvement of the larynx or immediately adjacent tissues This is in striking contrast to earlier reports by Figi[2] and Fitz-Hugh,[3] in which fully 95% of tracheotomies resulted from involvement of these structures

It seems evident then, that mechanical airway obstruction no longer is the chief indication for tracheotomy and that the larynx and immediately adjacent tissues no longer are the major site of diseases requiring tracheotomy The complete tabulation of specific diseases necessitating tracheotomy classified by primary disease site and type of ventilatory deficiency, is shown in table 3

TABLE 2—*Primary Disease Site in 310 Tracheotomies*

Disease Location	Operations No	
Head and neck		163
Tumors	54	
Diseases and injury trachea and larynx	40	
Burns	35	
Maxillofacial injury	23	
Neck injury	11	
Central nervous system		118
Cerebral disease	62	
Head injury	32	
After neurosurgery	24	
Thorax		29
Chest injury	16	
After thoracic surgery	13	
Total		310

Mechanical Ventilatory Obstruction—Tracheotomy was performed to prevent or treat mechanical airway obstruction 148 times (table 3) This obstruction was of two types (1) acute, sudden or complete and (2) partial or chronic Acute obstructions usually are recognized readily from obvious signs that the patient is breathing against resistance Chronic obstruction, most often the result of tumors or laryngeal stenosis, may not produce external signs of dyspnea However, due to long-standing hypoventilation, insidious hypoxia and hypercapnia may develop causing the chemical respiratory equilibrium to shift resulting in a compensated respiratory acidosis Under these conditions, the margin of safety is quite narrow and only brief periods of additional respiratory obstruction may be rapidly fatal It is important to recognize either type of mechanical airway obstruction so that acute obstructions can be energetically treated and chronic obstructions can be relieved before an acute crisis supervenes

TABLE 3—*Specific Causes for Mechanical and Secretional Ventilatory Obstruction in 310 Tracheotomies Classified by Primary Disease Site*

Mechanical Obstruction (148)		Secretional Obstruction (162)	
Head and Neck	(148)*	Head and Neck	(15)
Tumors†	(54)	Burns	(9)
With laryngectomy	15	Head neck and body	8
With neck dissection	7	Respiratory tract	1
Preradiation	8	Central nervous system	(118)*
Tumor obstruction	10	Poliomyelitis	35
X ray therapy obstruction	4	Encephalitis	7
Trachea and larynx	(40)*	Vascular accident	4
Inflammation	15	Fat embolism	3
After instrumentation	15	Air embolism	1
External trauma		Barbiturate poisoning	3
Vocal cord paralysis	4	Tetanus	2
Congenital obstruction	1	Miscellaneous (uremia septicemia cirrhosis diabetes porphyria)	7
Burns	(26)	Head injury	32
Head and neck	21	After neurosurgery	24
Respiratory tract	5	Thorax	(29)
Maxillofacial injury	(23)	Chest injury	(16)
With fractures	16	Wet lung	8
Soft tissue injury	7	Flail chest	8
Neck injury	(5)*	Thoracic surgery	(13)*
Soft tissue injury	5	Pulmonary	8
		Esophageal	5

* Numbers in parentheses indicate total number in each category
† Of the tumors of the head and neck 30 were of the larynx 15 were of the neck (metastatic), and 9 were miscellaneous

There were 23 deaths in the hospital in the 140 patients, a fatality rate of 16% Five deaths were due partially or wholly to complications of tracheotomy and five were believed due to a delay in the prompt performance of tracheotomy

Secretional Ventilatory Obstruction—Tracheotomy was performed to relieve secretional ventilatory obstruction 162 times The operation was done in certain instances to improve respiratory physiology or for use as a vent The great majority of operations in this group, however, were performed to relieve fluid accumulation in the lower airway associated with dysfunction of the normal coughing process

There were two clinical groups of patients having disturbances of the normal coughing process (1) those who were unwilling to cough and (2) those who were unable to cough [4] Pain on movement of the chest wall after operation or injury was the chief reason for unwillingness to cough About 15% of the patients with secretional obstruction were in this group Inability to cough resulted from anesthesia, coma, or debilitating diseases In these patients, who made up 55% of the total group, the anatomic mechanism for coughing was intact but the central response to stimuli was depressed Inability to cough resulted also from interruption of the neuromuscular pathways necessary for coughing About 30% of all secretional obstruction was due to this cause

The physiological abnormalities resulting from retained secretions consist of hypoxia, hypercapnia, and respiratory acidosis The asphyxia that ensues, although more insidious, may be just as deadly as that of mechanical airway blockage Several important concepts regarding the clinical state of asphyxia due to retained secretions should be noted 1 The seriousness of oxygen deprivation, especially in the presence of central nervous system damage, is well documented [5] 2 Carbon dioxide retention is of equal importance in causing serious changes Hypercapnia may reach dangerous levels even with a normal oxygen saturation [6] Relief of respiratory obstruction is the only sure method of combating hypercapnia 3 Many vicious cycles of increasing asphyxia may result from hypoxia and hypercapnia, especially in the presence of cerebral or thoracic lesions [1b] 4 The clinical manifestations of hypoxia and hypercapnia may be identical to those resulting from the primary disease [7] 5 Obvious signs of respiratory distress and cyanosis may be neither common nor early signs of secretional obstruction In fact, in many diseases with associated secretional obstruction, the patient's ability to manifest dyspnea is nullified by central respiratory depression or weakness of the thoracic bellows system

There should be a high index of suspicion that retained secretions are associated with the lesions listed in table 3 under secretional ventilatory obstruction Reliable findings consist of rales and rhonchi over the lung fields and physical or roentgenographic evidence of atelectasis or pulmonary infiltration Frequently these signs may be minimal or absent, with the only changes being alteration of the vital signs and apprehension, uncooperativeness, restlessness, and irritability The quantity of secretions obtained after tracheotomy even in the absence of signs of retained secretions was surprising in certain instances The prompt improvement of the patient left no doubt that many of the grave findings were due to hypoxia and hypercapnia

In many of the patients every conceivable method for removal of secretions was tried and found to be inadequate In others the indication for early tracheotomy, as the initial step in management, was apparent Tracheotomy often was the single best method that met all the existing requirements for a clear airway

In the 160 patients, there were 91 deaths, giving a fatality rate of 57% Of these deaths only one was due to complications of tracheotomy, while in five patients errors of surgical judgment in the use of tracheotomy were partially responsible for death

Advantages of Tracheotomy

The advantages of tracheotomy in bypassing an obstruction were dramatically illustrated in patients with head and neck tumors, burns maxillofacial injuries and trauma to the larynx The benefits of tracheotomy were realized to a much greater degree if the operation was performed before severe obstruction developed The removal of accumulated secretions in patients with cerebral diseases and injuries resulted in improvement and lowered mortality mainly because the danger of the devastating combination of damaged cerebral and medullary tissues plus low oxygen and high carbon dioxide concentrations was minimized

The use of tracheotomy for improving ventilatory efficiency as well as removal of secretions are advantages recently stressed by Carter [8] in cases of chest injury The decreased resistance to breathing and elimination of dead air space above the tracheotomy site are potent factors in promoting a more efficient utilization of the reduced tidal air exchange that occurs with crushing chest injury These same physiological improvements are of advantage in any patient with a reduced vital capacity, such as in spinal cord injury, poliomyelitis, encephalitis, severe burns, and after extensive thoracic or abdominal operations

An additional physiological advantage was noted in certain of these patients The tracheotomy opening served as a vent (1) in respirator patients to prevent the action of the respirator from drawing pharyngeal secretions into the larynx [7], (2) in patients with increased intracranial pressure to lessen the transmission of intrathoracic pressure to the cranial cavity [9], and (3) to prevent pressure due to a closed glottis from forming on a precarious bronchial stump closure This last use has not been described previously We found it to be of practical merit in two patients after difficult pulmonary resections

Special Uses for Tracheotomy

The tracheotomy opening was used as a simple and accessible route for endotracheal anesthesia 101 times, artificial respiration 25 times, and bronchoscopy 22 times Bronchoscopy was employed in patients with secretional obstruction or crusting of secretions not relieved by the usual method of aspiration Endotracheal anesthesia was administered through the tracheotomy opening in patients with deep burns of the face, maxillofacial injuries head and neck tumors and head injuries The anesthetic technique is simplified by this method, since the endotracheal tube can be placed after topical anesthesia and the surgical field remains free of anesthetic apparatus Some patients underwent anesthesia in this manner as many as 15 times About one-third of the patients with deep facial burns had tracheotomy performed primarily for use in anesthesia

In patients with severe intracranial damage who developed sudden respiratory failure, respiratory exchange was restarted and maintained by attaching the tracheotomy to a source of oxygen with rubber tubing This tube should have a side-vent that can be opened and closed with the finger so that inspiration and expiration can be simulated with the make-and-break flow of oxygen Leakage of oxygen can be diminished by placing a gauze pack in the pharynx

If more than emergency respiratory resuscitation is needed, then the tracheotomy cannula can be replaced with an endotracheal tube that is connected to one of several types of automatic respirators such as the pneophore or Jefferson ventilator These devices have the disadvantage of causing extreme drying the respiratory mucosa and crusting of secretions In addition, access to the airway is limited and, since the normal means of liberating carbon dioxide is prevented, respiratory acidosis may occur Most of these disadvantages are avoided by using the extracorporeal or tank respirator for respiratory assistance On the basis of our experience, nearly every respirator patient should have a tracheotomy

Technique

The technical details of these 310 tracheotomies were as follows The operation was elective in 200 cases, urgent in 62, and done as an emergency procedure in 48 The skin incision was vertical in 248 cases and transverse in 62 The tracheal incision was vertical in 224 cases cruciate in 28, and T-shaped in 12, the excision technique was used in 46 cases The type of anesthetic used was local in 248 cases and general in 34, no anesthetic was used in 28 instances Emergency operations were those in which little time was allowed for anesthetization or sterilization The emergency nature of these tracheotomies is demonstrated by the fact that no anesthetic agent was employed in over one half With elective operations, there was generally ample time to decide upon and perform tracheotomy Certain operations fitted neither of these categories and were arbitrarily termed urgent

Although many variations in technique were employed by the different surgeons, a decided preference was shown for the classic method, with use of a vertical skin incision and a simple vertical slit into the trachea It is our opinion, based on anatomic, clinical, and experimental study, that in elective operations excision of a segment of the anterior tracheal wall should be accomplished and that, if the thyroid isthmus overlies the optimum site for the tracheal opening, it should be divided instead of being retracted These additional steps provide a safe airway should the cannula be removed by accident or design, especially in the first three or four days after tracheotomy before a patent fistula forms With the classic technique there is a distinct hazard that the thyroid isthmus will cover the tracheal opening or that the edges of a simple slit will approximate if the cannula should be dislodged or removed Several serious episodes of respiratory distress occurred when the cannula was removed in certain patients with laryngeal obstruction One death from sudden asphyxia resulted when a patient with severe edema of the larynx dislodged his cannula accidentally

When the excision technique was used, the ease and safety with which the cannula could be removed and replaced with another cannula, a bronchoscope, or an endotracheal tube was impressive No disadvantages, complications, or delay in healing resulted

The most common mistake made in the performance of emergency tracheotomy was the loss of valuable time in an effort to gain visual exposure of the trachea With use of the "feel' technique, as described originally by Jackson,[10] emergency operations can be completed in less than one or two minutes if the occasion demands

TABLE 4 —*Complications and Deaths in 310 Tracheotomies*

		No of	
Complication		Complications	Deaths
Blockage of cannula		10	1
Bleeding		10	
During surgery	5		
After surgery	5		
Pneumothorax		7	1
Mediastinal emphysema		6	
Difficulty with cannula		7	2
Too low	3		
Too short	2		
Too small	2		
Too long	1		
Technical difficulty		5	1
Apnea		3	1
Aspiration of vomitus		2	
Wound infection		2	
Persistent fistula		1	
Esophageal injury		1	
Total		54	6
Deaths due to errors of surgical judgment*			10
Total deaths due to tracheotomy			16

Due to delay in performance of tracheotomy

After-care and Complications

Since tracheotomy often is undertaken in haste and to save life, certain errors and complications might well be accepted as inevitable However, our analysis of deaths and complications revealed that many of these mistakes were avoidable (table 4) In the more recent years of this study, the number of complications and deaths was reduced, despite an increased use of the operation We attribute this reduction to several factors (1) an increased awareness of the value of early tracheotomy before serious respiratory manifestations are present, (2) the performance of emergency tracheotomy with dispatch when indicated, (3) the use of an airway to convert urgent operations to deliberate ones, (4) the use of the excision technique for elective tracheotomy, and (5) careful attention to proper after-care

The errors associated with tracheotomy occurred in three main categories (1) those due to errors of surgical judgment, (2) those due to operative mistakes, and (3) those due to faulty after-care

Ten deaths occurred, eight within the first five years of this study, because of delay in undertaking a clearly indicated tracheotomy This fact further emphasizes the value of early tracheotomy These deaths were tabulated without regard to the seriousness of the primary disease or other mitigating circumstances

Complications and deaths occurring at the time of tracheotomy were more frequent in children and with emergency operations The dangers of emergency operations in the young were lessened greatly if the surgeon was experienced in the performance of both emergency and elective operations and if a preoperative airway could be established to reduce the urgency of tracheotomy

The majority of the other six deaths and 54 complications resulted mainly from faulty postoperative management rather than operative mistakes The three basic steps necessary to keep both the natural and artificial airways open are (1) observe, clean, and change the cannula as often as needed, (2) humidify inspired air, and (3) aspirate tracheobronchial secretions properly Violation of these principles was responsible in rare instances for loss of a life that had just been saved by a skillfully executed operation The excision technique, with division of the thyroid isthmus where indicated, was responsible also for increased ease of all aspects of postoperative management The continued safety of the airway was a potent factor in the prevention of serious respiratory embarrassment

TABLE 5 —*Results in 300 Patients Undergoing Tracheotomy (310 Operations) for Mechanical Ventilatory Obstruction (MVO) and Secretional Ventilatory Obstruction (SVO)*

Patients No		Lived	Died	Saved by Tracheotomy
With MVO	140(148)*	117	23[10]†	45
With SVO	160(162)*	69	91[6]	37
Total	300(310)	186	114[16]‡	82

Numbers in parentheses indicate total operations
† Numbers in brackets indicate deaths due to tracheotomy
‡ 10 deaths due to delay in performance of tracheotomy

Results

The results after tracheotomy are summarized in table 5 The over-all fatality rate in these patients was 38%, which indicates clearly the serious type of disease with which tracheotomy is associated The number of deaths in patients with secretional obstruction was almost four times that of patients with mechanical airway blockage This finding demonstrates that the diseases for which the value of tracheotomy has been recently recognized have an intrinsically high mortality Inclusion in the mortality statistics of 10 deaths believed to be due to delay in performing tracheotomy introduces a factor that is difficult to evaluate—surgical judgment In recent years, as the indications for tracheotomy have become well recognized even in fields of medicine and surgery where once there was little experience with the operation, this source of error has been virtually eliminated In addition, increased familiarity with the operation has reduced the incidence of operative and postoperative mistakes The increased use of tracheotomy was reflected also by better survival rates in patients with cerebral and thoracic lesions For example, of 40 patients in respirators who were treated with tracheotomy, about 50% more survived than in a group treated similarly, but without tracheotomy In 16 patients with severe crushing injury to the chest, there was only one death There were 82 patients in whom tracheotomy was considered lifesaving This consideration alone, which disregards the special benefits, uses, and advantages of tracheotomy in reducing morbidity and increasing the ease of all aspects of the management of respiratory problems, seems ample justification for the present-day widespread employment of the operation

Summary

An analysis of 310 recent tracheotomies points up the changing concepts regarding the indications and uses, the increase in scope and number of indications, the advantages and special uses of the operation, and the avoidance of complications and deaths associated with tracheotomy by better recognition of the need for the operation, by the use of certain refinements in technique, and by closer attention to the fundamentals of after-care of the patient who has undergone tracheotomy It seems certain that this versatile operation, which is *a safe and efficient means for saving life,* reducing morbidity, and simplifying many problems of management in a wide range of common disease and injuries, will be even more widely used in the future, as the clinical advantages and safeguards of technique and after-care are better recognized

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This report is an abridgement of a portion of the material submitted by Major Nelson to the Graduate School of Baylor University in partial fulfillment of the requirements for a master of science degree in surgery

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CLINICAL OBSERVATIONS IN MANIC-DEPRESSIVE DISEASE

A QUANTITATIVE STUDY OF ONE HUNDRED MANIC-DEPRESSIVE PATIENTS AND FIFTY MEDICALLY SICK CONTROLS

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• *From 249 psychiatric patients with the diagnosis of manic depressive disease a consecutive group of 100 were selected by systematic criteria They were compared with a control group of 50 patients hospitalized with diagnoses of recognized medical diseases Data were obtained by clinical examination, laboratory tests, and questionnaire The mean age of onset for men was 41 2 years and for women 41 4 years, and no evidence was found to justify the continued use of the phrase "involutional melancholia" as implying that there is anything distinctive about the depressions of women near the menopause The frequency of each individual symptom was studied Many "medical" symptoms, such as headache and abdominal pain, were as frequent in the manic depressive group as in the medically sick controls The most significant differences related to poor concentration, poor sleep, and low mood, which were more frequent in the manic depressive group Fear of "losing mind" occurred as a feature of manic depressive disease Spells of various kinds were common in these patients, and the "anxiety attacks" that occurred in about one third of them were extremely rare in patients with medical disease The patient's own impression as to the precipitating event was usually clearly wrong or improbable Increase in alcoholic ingestion was common in the manic depressive patient Family history showed significantly more "alcoholic" fathers At least part of the problem called "alcoholism" seems related to manic depressive disease Some symptoms, such as thoughts of suicide and poor concentration are rare in medical patients and characteristic of the manic depressive patient The consequences of this illness include alcoholism, losing jobs, marital infidelity, unhappy marriages, business failures, lawsuits, and automobile accidents, among others These serious consequences, the worst of which is death by suicide, make it important for doctors to learn to diagnose this common disease accurately This can be done by the simple clinical pointers presented here Knowledge of these facts is essential for the diagnosis and treatment of manic depressive disease, one of the commonest of psychiatric disorders*

Manic-depressive disease, in some of its aspects at least, has been recognized for a long time, as evidenced by descriptions of Hippocrates, Arateus, Job, and Burton,[1] among others Clinical studies, with published data, include those of Kraepelin, Lange, Muncie, and Campbell[2] Despite the fact that the disease has plagued the human race for a long, long time and that it is common in medical practice (over 12% of all cases in a large diagnostic hospital and clinic[3]) and is a serious cause of disability and even death,[2a] it is still true that the cause of the illness is not clear, that its diagnosis is inexact and frequently missed, that the mechanism of the symptoms is not known, and that the treatment is still uncertain and a matter of debate Because of the seriousness of the problem of manic-depressive disease and the many gaps in knowledge about it, further study is necessary Before studying further the details of the disease, it seemed important, as in previous studies of common psychiatric disorders—anxiety neurosis,[4] hysteria,[5] and compensation neurosis[6]—to begin with a detailed clinical study not only for practical diagnostic purposes but for further use as a clinical base line in other scientific studies This report deals with clinical observations in 100 manic-depressive patients as compared with 50 medically ill patients of comparable age and background It is hoped that the results of this study will serve as a clinical base line for further scientific studies of manic depressive disease by our group as well as by others

Methods of Selection and Study

Selection of Patients—One hundred patients were hospitalized and selected systematically by special criteria for this study They were part of a group of 340 psychiatric patients the conditions of 248 of whom were diagnosed as being manic-depressive disease, while 29 were given no diagnosis Sixty-two were given other psychiatric diagnoses, and 1 had no disease The 100 patients were considered sick enough to require hospital observations, and in most cases the patients were admitted for electroconvulsive treatment In general they were probably the sickest of the whole group of 248 patients with manic-depressive disease The remaining 148 were treated with sedatives and office guidance Admission to the series was by one of the following criteria from the information on a form (fig 1) I By the systematic method, the patient (*a*) had made at least one statement of mood change, including any of the following blue, worried, discouraged, and 16 equivalent expressions and (*b*) had any 6 of the 10 of following special symptoms slow thinking, poor appetite, constipation, insomnia, feels tired, loss of concentration, suicidal ideas, weight loss, decreased sex interest, and wringing hands, pacing, overtalkativeness, or press of complaints II In the examiner s best opinion manic-depressive disease was the

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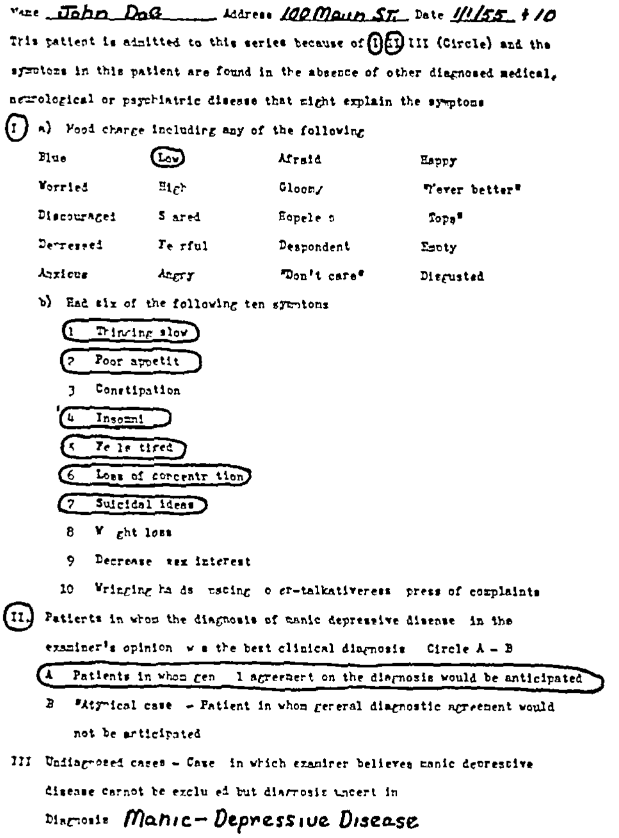
Read before the Ninth Clinical Meeting of the American Medical Association Boston, Dec 1, 1955 correct diagnosis, based on all clinical information and judgment III The patient's condition was undiagnosed, and manic-depressive disease could not be excluded

In the absence of other diagnosed medical, neurological, or psychiatric disease, a patient could be admitted to the series by any one of the above three criteria Of these, 83 were selected primarily on the basis of the systematic method (I), 17 were admitted on examiner's best diagnosis" criterion (II), and none on the basis of criterion III, i e, undiagnosed No patient was dropped from the study once admitted The selector estimated whether the cases would be called typical by most psychiatrists and concluded (at best, this is an impression) that 81% of the cases were diagnostically clear enough so that most psychiatrists would agree and that, in the other 19%, other psychiatrists might question the diagnosis



Name John Doe Address 100 Main St. Date 1/1/55 # 10

This patient is admitted to this series because of [✓ I] [✓ II] III (Circle) and the symptoms in this patient are found in the absence of other diagnosed medical, neurological or psychiatric disease that might explain the symptoms

[✓ I] a) Mood change including any of the following

Blue	[✓ Low]	Afraid	Happy
Worried	High	Gloomy	"Never better"
Discouraged	Scared	Hopeless	"Tops"
Depressed	Fearful	Despondent	Empty
Anxious	Angry	"Don't care"	Disgusted

b) Had six of the following ten symptoms

[✓ 1 Thinking slow]
[✓ 2 Poor appetite]
3 Constipation
[✓ 4 Insomnia]
[✓ 5 Feels tired]
[✓ 6 Loss of concentration]
[✓ 7 Suicidal ideas]
8 Weight loss
9 Decrease sex interest
10 Wringing hands pacing over-talkativeness press of complaints

[✓ II.] Patients in whom the diagnosis of manic depressive disease in the examiner's opinion was the best clinical diagnosis Circle A – B

[✓ A Patients in whom general agreement on the diagnosis would be anticipated]

B "Atypical case – Patient in whom general diagnostic agreement would not be anticipated

III Undiagnosed cases – Case in which examiner believes manic depressive disease cannot be excluded but diagnosis uncertain

Diagnosis Manic-Depressive Disease

Fig 1—Form used for selection of patients in study on manic-depressive disease

Selection of Control Subjects—For purpose of comparing symptoms, past history, general features of temperament, and some social consequences of illness, 50 control subjects were selected These were chosen in approximately the same age group and with approximately the same proportion of men and women as in the group of manic-depressive patients Medically sick hospital patients in the same hospital were selected in order to learn how other sick patients compared with manic-depressive patients These patients were consecutive admissions of five physicians and also some ward patients The patients were predominantly private patients, in the manic-depressive group the proportion being 96 private to 4 ward patients, in the medically sick patients the proportion was 35 private to 15 ward patients All control patients had been given definite diagnoses No undiagnosed cases or cases of primary neurological or psychiatric diseases were included The diagnoses included heart disease in 16, neoplasm in 11, liver disease in 6, kidney disease in 7, diabetes in 3, peptic ulcer in 3, lung disease in 4, hernia in 2, cholecystitis in 1, and thyroid disease in 3, 6 had two diseases Three were excluded from the study because, at the time of examination, the patients were too sick with dyspnea or coughing to take part in the interview One subject who was included was incompletely interviewed because she refused to go on with the interview

Methods of Study—To all 100 patients in the group of manic-depressive patients and to the 50 medically sick patients, in addition to the usual clinical examination and laboratory tests, a questionnaire containing 188 items was administered This questionnaire (the details of which are in appendixes 1 and 2, which are not included in this published report) followed in a systematic way the general outline of the usual medical and neuropsychiatric history There were the following number of items in each category general and identifying, 9, chief complaints, 1, symptoms of present illness, 65, history, 65, course and associated events, 8, operations and hospitalizations, 4, other illnesses, 12, and examination items, 20 The studies also included routine neuropsychiatric history and examination, electrocardiogram, roentgenograms of the chest, hematological and urine examination, and, in selected patients, special tests, such as electroencephalographic studies, endocrine studies, and others The questionnaire was administered and examination of both patients and controls was done by the same physician, using, as far as possible, the same wording of questions (appendix 2) The selection of patients and controls was done by another physician Data were recorded on prepared forms and were tabulated, and results were analyzed statistically Comparisons of means, modes, and proportions and calculations of standard errors of means and proportions and of significance ratios were made by means of standard statistical calculations [4b]

Results

Evaluation of Methods of Selection—Eighty-three of 100 manic-depressive patients were selected on the basis of both methods I and II In the other 17 patients, the criteria of method I were not completely met, and they were included by method II Of these 17, 10 had as many as four or five of the required six symptoms Four of the 17 patients who did not meet the criteria were predominantly manic Since there were only six predominantly manic patients in the entire study, it appeared that the systematic criteria were not well suited for predominantly manic patients One patient was mute at the time of selection observations, and one dissimulated at the time by denying any and all symptoms The data suggest that, in general, diagnoses based on method I agreed fairly well with those based on method II Since the systematic criteria were based on our ideas of best clinical methods for diagnosing manic-depressive disease, the close agreement was obviously not pure chance A follow-up study, in which information was obtained from 97 of the 100 manic-depressive patients 11 to 36 months later (mean 16 6 months), showed that (1) in no case had another diagnosis emerged to explain the patient's symptoms or illness, and (2) three of the patients were again in the hospital, 72 2% were well or greatly improved, and 20 0% were moderately improved These data, which were not intended as an evaluation of therapy, are presented to show that in these patients the disease had run the course generally described as the expected one of manic-depressive disease[3]

Comparison of General Features of Manic-Depressive Patients and Controls—Table 1 shows that the general characteristics, such as age, sex distribution and ethnic and educational background, shown in studies on the groups of manic depressive and medically sick control patients, were quite similar

TABLE 1—*General Characteristics of 100 Manic-Depressive Patients and 50 Medically Sick Controls*

	Manic Depressive Patients	Medically Sick Controls
Mean age yr	48 2	53 0
Age range yr	[illegible]	21 79
Marital status		
Married %	58	[illegible]
Widowed %	11	14
Divorced %	3	11
Single %	28	24
Women % of group	66	56
Women who are housewives %	62	68
Education		
Less than high school %	38	46
High school graduate %	15	16
High school graduate and less than college graduate %	21	14
College or more %	16	8
Unknown %	10	16
Ethnic group		
Irish or mixed Irish %	66	74
Others %	34	22
Unknown %	0	4

Administration of Questionnaire—It was possible to score most of the answers to the questionnaire Some patients and some controls did not answer an occasional question or answered in a way that could not be scored

Age at Onset—Age at onset of the disease, but not necessarily the present attack, ranged from 15 to 78 years, with a mean of 41 4, a mode of 31-40, and a median of 40 5 years Distribution of the ages at onset by decade is presented in figure 2 The mean age at onset for those patients who were having their first attack was 48 1, with range of age at onset from 23 to 71 years The mean age at onset for 34 men was 41 2 years and for 65 women, 41 4 years, which is in contrast to two other common psychiatric illnesses which begin earlier (fig 3)

Chief Complaints—The chief complaints seemed to divide into several categories, which included (1) localized medical, (2) generalized medical, (3) psychological, (4) mixed, i e, medical and psychological, (5) medical, general and local, and (6) no clear information These complaints in 100 manic-depressive patients, quoted for the most part in the patients' own words, are

(1) localized medical in 18 patients 'head is heavy feels sensitive , my neck pressure in my throat bowels they won t move , headaches (three patients) sinuses urinating frequently , 'pain in head like a balloon that burst awful feeling spasm in vagina , these sweaty hands upset stomach , awful sick feeling in stomach , feels she is pregnant I can t see , noise in ears like steam , I have a burning across abdomen my heart pounds fast

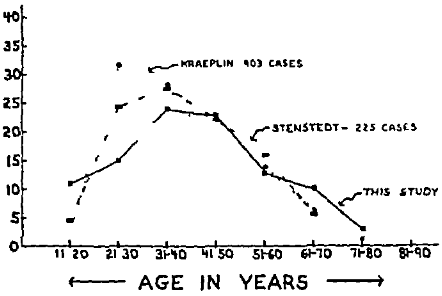


Fig 2—Graph of age at onset in 99 patients in this study compared with data from Kraepelin in Germany, 1921,[2a] and Stenstedt in Sweden 1952,[7] showing good agreement between studies done in different countries, at different times, and by different investigators

(2) generalized medical in 11 patients tired I'm exhausted I feel all in tired easy , jumping mostly at night I can t do my work I don t feel strong , sick feeling all over me 'high blood pressure they tell me the tremors like a quivering I tremble like a leaf , I have no energy

(3) psychological in 58 patients depressed (12 patients), one section of brain working , seem to be afraid , 'I have nothing to look forward to no interest (two patients) afraid to be alone afraid to go out alone at night no patience , nervous (four patients) chronic nervousness I find specks in my food I've been morbid and won t eat I could feel more relaxed fear of having children , no interest (two patients) can t remember anything (two patients) lack of sleep (three patients), I can t keep my mind on one thing long enough to finish it , just discouraged and hurt black moods and blind rages I m doing such stupid things silly fears spells where it s hard to know what to think , I m all mixed up I have been very quick , undecided uneasy feelings I couldn t concentrate , they had the police after me very unhappy at times , afraid to spend money holy spirit seems to tell me something', feelings of guilt , "brooded around the house , I m upset', doubtful about my vocation , worrying about things I don't like to come home , I just

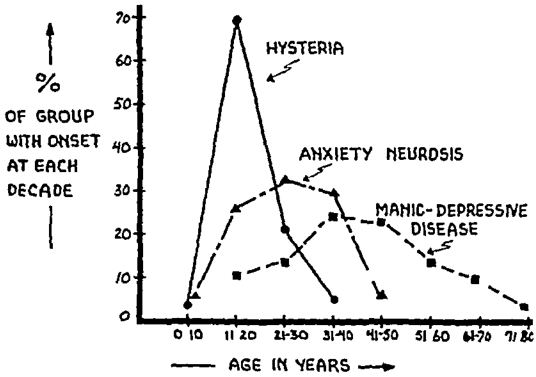


Fig 3—Graph showing that age at onset of manic depressive disease may be much later than that of hysteria or anxiety neurosis (neurocirculatory asthenia)

feel bad about the way things have worked out', I wonder if my marriage was a mistake just all gone', my wife developed a system of symbols

(4) medical and psychological in two patients I get scared to death and can t breathe stiff neck and crying spells

(5) Medical general and local in two patients 'breathing difficulty pain all over , I have no power, my arms are weak, I can t work

(6) no information in nine patients

The chief complaints in 50 medically sick controls were

(1) Localized medical in 43 patients ankle swelling fluid in legs , pain in chest and shoulders , pain in left shoulder diabetes my feet started swelling , swelling in left side of neck pain in back sort of congested choked up' pain in left side of breast , pain in tip of spine , persistent headaches pain in chest, like pleurisy , bleeding ulcers , ulcer , slight pain across chest', rapid heart , history of bleeding with bloody stools 'backache , vision down in left eye frontal ache, steady pain—right side , hard time breathing , pain in chest and down left arm drainage from right breast, food don t seem to go through , 'wheezy , noticed a lump cough hernia , swelling in throat, red blood in stool , constipation , pain in neck constipated , headaches and losing weight , short of breath', asthma , bowel obstruction headaches nausea , always awfully bloated

(2) generalized medical in three patients weakness and dizziness weakness could hardly get up stairs , just weak

(4) Medical and psychological in four patients pain in back and no ambition , kind of dizzy and muddled up inside' somewhat nervous, lost a lot of weight

(6) no information in 1 patient

TABLE 2—*Characteristics of Chief Complaint in 100 Patients with Manic-Depressive Disease and 50 Medically Sick Controls*

	Manic Depressive Patients %	Medically Sick Controls %
Medical localized	18	86
Medical generalized	11	6
Medical localized and generalized	2	0
Psychological	58	0
Medical and psychological	2	6
No information	9	2

Table 2 gives the relative proportions of the various types of chief complaints in the groups of manic-depressive and medically sick patients It shows clearly that only 18% of the manic-depressive patients had chief complaints localized medical in character, in contrast to almost 90% of the medically sick controls None of the medically sick patients had only psychological chief complaints, in contrast to 58% of the manic-depressive patients

Symptoms and Signs of Present Illness—Table 3 presents the data on symptoms and signs of the manic-depressive patients as compared with those of the medically ill patients For a few of the symptoms, previously collected data from healthy control subjects (table 4) are included as a reminder of the relative infrequency of medical symptoms in healthy individuals

Table 3 shows that 'medical symptoms such as headache, blurred vision, dyspnea, palpitation, anorexia, weight loss, nausea, abdominal pain, constipation, urinary frequency, dysmenorrhea, pains, and weakness among others occur in high frequency in manic-depressive disease It is of note that these symptoms occur about as frequently in these patients as in medically ill patients, and some of the medical symptoms occur even more frequently in the manic depressive group than in patients admitted to a hospital for medical illness

TABLE 3—*Symptoms and Special Signs of Present Illness in 100 Patients with Manic-Depressive Disease and 50 Medically Sick Controls*

Symptoms	Manic Depressive Patients %	Medically Sick Controls %	Significance Ratio
Headaches	49	30	1.5
Blurred vision	32	16	2.1
Tinnitus	28	10	2.5
Diminished hearing	20	22	0.3
Burning throat	3	4	0.3
Burning tongue	7	0	1.9
Dyspnea	77	66	1.4
Palpitation	57	67	1.3
Chest pain	36	50	1.7
Anorexia	88	42	6.0
Increased appetite	3	6	0.9
Nausea	48	42	0.7
Vomiting	22	30	1.1
Indigestion	36	40	0.5
Abdominal pain	38	38	0
Weight loss	73	48	3.0
Weight gain	8	2	1.5
Constipation	60	52	0.9
Diarrhea	34	22	1.5
Urinary frequency	60	34	3.0
Dysmenorrhea	39	25	0.7
Menstrual lapses	22	25	0.2
Irregular menses	43	27	0.2
Excessive menses	25	12	0.7
Scanty periods	25	37	0.7
Hot flashes	29	14	1.6
Sex function increased	8	0	1.4
Sex function decreased	63	39	2.0
Paresthesias	53	34	2.2
Back pain	39	40	0.1
Joint pain	30	22	1.0
Extremity pain	25	26	0.2
Anxiety attacks	33	4	4.0
Spells	62	32	3.5
Dizzy spells	29	10	2.6
Weakness	54	46	0.9
Sleep change	97	50	7.0
Insomnia	94	38	7.5
Trouble getting to sleep	72	36	4.2
Early morning waking	80	16	7.5
Poor quality sleep	56	8	5.6
Never sleep	20	2	3.0
Sleeps too much	9	4	1.1
High and good mood	6	78	9.1
Low mood	95	16	9.7
Crying	72	32	4.7
Irritability	75	36	4.6
Temper increased	34	4	3.8
Temper decreased	21	2	2.9
Suicidal thoughts	45	2	5.3
Fear of death	35	18	[illegible]
Fear of fainting	23	8	2.2
Fear of losing mind	63	4	6.8
Think will get well	28	61	3.6
No possibility of recovery	20	6	[illegible]
Poor concentration	83	4	[illegible]
Thinks less clearly	56	2	6.4
Thinks more clearly	3	0	0.4
Speed of thinking increased	6	0	1.8
Speed of thinking decreased	64	6	6.7
Feels memory is poor	2	6	0.5
Hallucinations	7	0	1.9
Delusions	[illegible]	0	[illegible]
Signs			
Untidy	13	2	2.2
Untidy fingernails	29	4	3.4
Hair unkempt	32	11	2.8
Unshaved	24	5	5.8
Immobile facies	43	6	4.6
Crying	13	4	1.8
Tremor of outstretched fingers	21	11	1.4

The picture is somewhat different as concerns symptoms of psychological abnormalities (table 3), questions regarding which are unfortunately omitted in the usual medical examination. Here there are a number of symptoms, such as poor concentration, slow thinking, low mood, "anxiety attacks," the feeling of having a poor memory, fear of losing mind, suicidal thoughts, and expression of low expectancy of recovery from the illness, that seem to be characteristic of manic-depressive disease and occur infrequently in medical disease.

TABLE 4.—*Frequency of Symptoms of Present Illness 100 Manic-Depressive Patients, 50 Medically Sick Controls, and 246 Healthy Controls**

Symptom	Manic Depressive Patient %	Medically Sick Control %	Healthy Controls %
Headaches	40	30	25
Blurred vision	32	16	7
Dyspnea	7	60	3
Palpitation	67	[illegible]	10
Chest pain	36	50	8
Anorexia	86	42	8
Nausea	48	42	7
Vomiting	22	30	5
Abdominal pain	9	38	16
Diarrhea	34	22	2
Urinary frequency	66	34	4
Dysmenorrhea	29	2	30
Menstrual lapse	22	7	2
Irregular menses	43	27	12
Excessive menses	25	12	2
Paresthesias	53	34	5
Back pain	31	40	16
Joint pain	30	22	5
Extremity pain	2	26	5
Anxiety attack	35	4	5
Dizzy spell	2	10	14
Weakness	54	40	3
Insomnia	84	28	10
Crying	7	3	30
Irritability	7	4	1
Fear of death	3	18	3

Mean age of manic-depressive patients was 48, of medically sick controls 53.6 and of healthy controls 39.0 yr. Healthy controls include 79 soldiers, 50 working women, 41 puerperal women from Boston Lying-in Hospital, 15 men employees of a utility company, and 50 men and 11 women from a large industrial plant.

In addition to symptoms notable for their frequency some symptoms, such as insomnia, with early morning waking, and anxiety attacks, with fears of losing mind, suggest manic-depressive disease. A few special signs that appear in significantly high proportions include such items as general untidiness, unkept hair, untidy fingernails and immobile facies. "Spells" of various kinds are common in manic-depressive disease (table 5). The "anxiety attack" is not seen as a feature of medical disease. In manic-depressive disease most patients show diminution of various functions (table 3) but a few show increases.

TABLE 5.—*Types of Spells in 62 of 100 Manic Depressive Patients and in 16 of 50 Medically Sick Controls**

Type of Spell	Manic Depressive Patients %	Medically Sick Controls %	Significance Ratio
Anxiety attacks †	33	4	3.9
Dizzy spells	29	10	2.6
Confused spells §	7	0	1.9
Undetermined spells	3	8	0.3
Syncope‖	2	12	1.0

* Data suggest that anxiety attacks occur frequently in manic-depressive patients and are extremely rare in patients with medical disease.

† Anxiety attacks: spells with fear, apprehensiveness and/or symptoms such as breathlessness, palpitation, tremors, and sweating.

‡ Dizzy spells: spells in which dizziness is the chief feature or an important feature in the spell without apprehensiveness or combination such as breathlessness and palpitation which usually accompany apprehensiveness or spells in which sensation of abnormal balance appears.

§ Confused spells: spells in which patient wanders about, is perplexed by, or feels there is change in self or environment.

‖ Syncope: fainting or faintness alone.

History.—Table 6 shows that history, with respect to medical symptoms, is about the same in patients with manic-depressive disease as in the medically sick controls. However, the history in manic-depressive patients reveals more symptoms such as insomnia, feelings of weakness, fears, particularly fear of losing mind, and suicidal thoughts. An average level of energy was characteristic in the history of medically sick controls, whereas manic-depressive patients show more of the extremes of energy levels. Whether these few differences constitute background symptoms in the manic-depressive patients or simply reflect the fact that some of the patients may have been ill before the present illness cannot be concluded from the data in the present study.

TABLE 6.—*Symptoms and Traits from History in 100 Manic Depressive Patients and 50 Medically Sick Patients*

Symptoms	Manic Depressive Patient %	Medically Sick Control %	Significance Ratio
Headache	33	20	1.7
Blurred vision	7	4	0.7
Double vision	2	2	0
Tinnitus	9	4	1.1
Hearing	7	12	1.0
Breathing difficulty	24	32	1.0
Palpitation	22	16	0.8
Chest pain	15	14	0.2
Anorexia	24	16	1.1
Indigestion	20	22	0.3
Nausea	22	14	1.3
Vomiting	17	16	0.2
Constipation	40	28	1.4
Diarrhea	7	6	0.2
Abdominal pain	22	22	0
Urinary frequency	17	10	1.1
Lapses in Menses	21	14	0.9
Irregular menses	11	10	0
Excessive menses	20	21	0.1
Scant menses	5	7	0
Dysmenorrhea	34	24	1.4
Hot flashes	33	31	0.2
Mood changes with period	52	34	1.6
Paresthesias	12	10	0.4
Paralysis	1	0	0.7
Back pain	23	10	1.9
Joint pain	19	14	0.8
Extremity pain	6	4	0.6
Sleep difficulty	40	16	2.9
Energy level low	7	0	1.9
Energy level average	20	47	2.6
Energy level high	6	53	1.7
Spells	14	16	0.3
Crying	31	20	1
Irritability	13	8	0.9
Weakness	12	0	2.6
Fear of losing mind	20	2	2.9
Fear of death	10	8	0.4
Fear of fainting	9	0	1.9
Suicidal thought	14	4	1.9
Trait			
Fussy	78	60	2.2
Temper outburst	3	33	0.4
Funny when well	60	4	0.7
Up and down disposition	20	8	2.9

The trait labeled as "fussy" (often termed "perfectionistic" or "compulsive"), that is, the patient believed himself to be overparticular, worried about details, or an overmeticulous housewife or businessman, was noted in 78% of manic-depressive patients. A high proportion of patients described themselves as having a reputation for being funny or witty, temper outbursts in the past, or a markedly fluctuating disposition as far as mood was concerned, and a large proportion (43%) described themselves as having excessive energy, leading to extra jobs, extra activities, or extracurricular activities at school and gave evidence to prove it. However, when these proportions were compared to those of medically sick controls (table 6), it can be seen that in only one trait that of varying from low to high moods was there a clear-cut and impressive difference between manic-depressive patients and control subjects. There are inherently large subjective factors in both the subject and the examiner in this estimation.

The amount of previous surgery was about the same for the patients and the sick controls and did not deviate from that of healthy controls previously described.[8] The average number of operations for manic-depressive patients (66 women, with mean age of 48 years) was 1.71 operations per patient, as compared with 1.38 operations per patient for the medically sick controls (29 women, with mean age of 52 years). This difference is not statistically significant (significance ratio, 1.13). Operative rates per person and per 100 years were manic-depressive, 3.63, medically sick controls 3.10 (significance ratio 0.84). Operative rates per person and per decade for manic-depressive vs medically ill were as follows: 1-10 years of age, 0.23 vs 0.24, 11-20 0.11 vs 0.24 21-30, 0.36 vs 0.26, 31-40, 0.57 vs 0.17, 41-50, 0.50 vs 0.36, 51-60 0.80 vs 0.34. Thirteen per cent of the manic-depressive patients had never had an operation in contrast to 28% of the controls (significance ratio, 1.6). Eleven per cent of the manic-depressive patients and 7% of the controls had 4 or more operations. There was no evidence that excessive surgery was important in manic-depressive disease in contrast to hysteria.[8]

With respect to other illnesses, in the 100 manic-depressive patients, either by history or during examination for admission to this study, there was evidence of the following diseases: peptic ulcer in 1, heart disease in 2, thyroid disease in 3, arthritis in 8, asthma in 2, and skin disease in 9. No patients had ulcerative colitis. It can be seen from the above data that the history of patients with manic-depressive disease was not psychologically spectacular or medically unusual.

Clinical Pathology.—Laboratory examinations, which included routine x-ray of the chest, electrocardiogram, routine hematological studies, and urine tests, were all within normal limits. A special study of electrocardiograms, as compared with those of healthy controls selected from a large community survey,[9] was made in the manic-depressive group. Detailed analysis revealed no characteristic abnormalities of electrocardiograms in manic-depressive disease.

Previous Episodes and Course.—Of the 100 patients, 6 were predominantly manic and 94 were predominantly depressed or anxious. No systematic attempt to place them into further subgroups[2a] was made. Forty-three per cent of the patients had had previous episodes of the disease. More than half, therefore, were in their first episode. Of patients over 45 years of age, 33% gave no history of manic-depressive disease.

Sometimes the term "involutional melancholia" is used to suggest a different disease from that called "manic-depressive psychosis." It was of interest, therefore, in this group to compare the symptoms of all women 45 years of age or over and in their first attack with those of other women in the series, i. e., women who had had more than one attack or who were under 45. The group of women over 45 with no previous attack consisted of 20 women with a mean age of 55.6; the others were 46 women with a mean age of 44.3. There was no striking difference in frequency of symptoms in the two groups (table 7). It can be seen, thus, that, as far as frequency of symptoms and disease picture is concerned, there was no difference between those patients having two of the characteristics of so-called involutional melancholia and the rest of the women in the group.

Twelve per cent of the 100 patients had been sick for one month or less, 32% for six months or less, 22% for one year or less, 27% for five years or less, and 4% for over five years. In 3% duration could not be determined. Thus, about half of the patients had been sick less than six months and about two thirds of the patients for less than a year.

Use of Alcohol.—Eight of the 100 manic depressive patients would probably have been considered "chronic alcoholics" by most physicians. These patients drank excessively, and their drinking was a problem to themselves or their families and interfered with their work. Table 8 shows the results of inquiry about the prevalence of alcoholism in the mothers, sisters, fathers and brothers of the manic-depressive patients. It shows that the male relatives (fathers and brothers), as well as brothers alone, of manic-depressive patients show a significantly higher amount of alcoholism than do the male relatives of control subjects, those both sick and healthy. As compared with medically sick controls, significance ratio was 2.33, with total controls it was 2.94. There was no difference in prevalence of alcoholism in female relatives (sisters plus mothers) of manic depressive patients as compared with controls. Brothers alone are significantly higher in alcoholism (3.12) in the manic-depressive patients, but fathers are not (1.01).

It is of interest that 28% of patients with manic depressive disease drank more alcohol when ill, while 31% decreased their drinking. This is in contrast to the medically ill patients, who did not increase their drinking, except for three cardiac patients who had been advised to have a little drink to "relax" their hearts. The spontaneous reaction in 22% of the medically sick was to cut down on alcoholic consumption, while 72% showed no change.

It was further noteworthy that in the 28% of the manic-depressive patients who increased their drinking during manic-depressive disease, 11% of their fathers and 18% of their brothers were alcoholics, as compared to the smaller proportion, 4% of brothers and 6% of fathers, of the relatives of those manic depressive patients who did not increase their consumption of alcohol during manic-depressive disease. These data suggest a possible relationship between manic-depressive disease and some portion, at least, of the problem called "alcoholism."

TABLE 7 —*Frequency of Symptoms in Twenty Female Manic-Depressive Patients, Aged Forty-five or over, with No Previous Episodes, and in Forty six Other Female Manic Depressive Patients*

Symptoms	Female Manic Depressive Patients 45 or over with No Previous Episodes %*	Other Female Manic Depressive Patients, %†
Headache	60	50
Blurred vision	20	37
Blindness	0	0
Double vision	0	2
Tinnitus	30	19
Hearing	35	18
Burning throat	0	4
Burning tongue	5	7
Burning rectum	5	9
Burning vulva	0	11
Any burning‡	10	18
Dyspnea§	65	83
Palpitation§	68	46
Chest pain	30	33
Anorexia	90	91
Nausea	60	54
Vomiting	25	28
Indigestion	40	39
Abdominal pain	35	41
Weight loss§	90	69
Weight gain	5	16
Constipation	70	57
Diarrhea§	20	37
Urinary frequency	45	59
Hot flashes	35	27
Libido increased	9	10
Libido decreased	54	52
Libido no change	36	34
Libido increases and decreases	0	8
Paresthesias	55	56
Paralysis	0	2
Back pain	35	43
Joint pain	30	30
Extremity pain§	15	37
Spells	58	75
Weakness	65	52
Sleep	100	100
Crying	75	85
Spirits	100	100
Irritability	70	78
Energy	100	98
Temper increased§	21	41
Temper decreased	16	22
Temper no change§	63	30
Drinking increased	15	27
Drinking decreased	45	16
Drinking changed	60	43
Drinking no change	40	57
Suicidal thoughts	45	41
Fear of death§	20	44
Fear of fainting§	15	38
Fear of losing mind	70	65
Poor concentration	70	89
Clarity of thought increased	0	4
Clarity of thought decreased	55	55
Clarity of thought changed	55	60
Clarity of thought no change	45	40
Retardation of thought	55	48
Speed of thinking increased	0	9
Speed of thinking decreased	60	61
Speed of thinking no change	40	30
Distractibility	0	9
Flight of ideas	10	9
Memory	60	78
Hallucinations	10	11
Delusions	20	31

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* Mean age 55 6 yr

† Mean age 44 3 yr

‡ Percentage of patients with burning of throat tongue rectum or vulva

§ Significance ratios of the difference between proportions for symptoms between two groups were where differences seemed largest dyspnea 1 67 palpitation 1 67 diarrhea 1 36 weight loss 1 82 extremity pain 1 79 drinking decreased 2 49 temper increased 1 55 temper no change 2 45 *fear of death 1 89 and fear of fainting 1 84*

Sex —In this group there were 34 men and 66 women, the mean age of the men was 49, and the mean age of the women was 48 The symptoms of palpitation, nausea, spells, and crying were statistically more frequent in the women Change in drinking and sex activity occurred statistically more frequently in men (table 9) Otherwise the frequency of symptoms was about the same in the two sexes

Precipitating Events —The patients were asked what they believed was the cause of their illness Attempts were made to decide whether these "causes or 'precipitating events" were possible, plausible, or reasonable In 50 of the 100 patients no particular 'cause" or precipitating event was elicited In the other 50, the patient mentioned some event that he believed might be related to the onset of the illness Of these 50 patients, 28 had the symptoms of the illness antedating the chosen "cause ' Of the 22 remaining patients, there were 4 patients to whom time relationships were not clear

This left 18 patients in whom there were no obvious symptoms before the patient's chosen cause ' On examination of the causes" related by nine of these patients, four were describing symptoms of the illness (feeling of overwork,' a false belief of 'lack of business' in a thriving professional practice, false belief of pregnancy, and a mistaken idea that a "substitute s work was done wrong") Two described "living with in-laws and bed-wetting, both of long duration, as causes, and three described probable results of the illness (conflict with mother-in-law, argument with mother, and difficulties with their superior) as causes

TABLE 8 —*Alcoholism in Mothers, Sisters, Fathers and Brothers of 100 Patients with Manic-Depressive Disease and 50 Medically Sick Controls*

Group of Index Case	100 Manic Depressive Patients			Controls: 50 Medically Sick			Controls: 54 Healthy Soldiers			Significance Ratio Patients vs Controls
	Total No	Alcoholics No	Alcoholics %	Total No	Alcoholics No	Alcoholics %	Total No	Alcoholics No	Alcoholics %	
Mothers	99	1	1 0	50	0		54	0		1 03
Sisters	155	1	0 6	97	2	2 1	91	0		0 41
Fathers	99	7	7 1	50	2	4 0	54	2	8 7	1 01
Brothers	161	12	7 4	103	1	1 0	83	1	1 2	3 12

There then remained nine patients by whom events were mentioned that might reasonably and plausibly have been causes' (they were not clearly symptoms or results, nor were there clear data to suggest that symptoms of this attack antedated the 'cause') These 'causes" included (1) niece with cancer, (2) hysterectomy six years before, (3) things stolen from apartment, (4) tornado in Worcester, (5) two hurricanes, (6) husband s death, (7) thyroid operation six years before, (8) recent dilation and curettage, and (9) sister left home to be married and left her alone Three of these patients had had previous attacks of manic-depressive disease In five of these nine cases, the 'cause" had occurred several years before admission

Examples of the more intriguing causes" from the whole group of 100 follow One patient stated that hurricane Carol caused the trouble, however, there was good evidence that six weeks before hurricane

Carol the patient had many symptoms Another patient complained that the illness was brought on because her niece went blind, actually her symptoms had started well before the blindness in the niece One patient complained that the illness was caused by an operation on her sister, but the evidence was that the illness had started prior to this event One complained that the illness was brought on by hysterectomy, when there was evidence that symptoms had occurred prior to hysterectomy Examples of "causes" that are actually symptoms are as follows One patient felt that she was no longer able to do her job right, another felt that automobiles made noise, another complained of lack of employment and another of too much work (in both of these cases it seemed that these 'causes" were actually part of the disease)

TABLE 9—*Frequency of Symptoms of Present Illness in Thirty four Men and Sixty six Women with Manic-Depressive Disease*

Symptom	Men %*	Women %†
Headache	41	53
Blurred vision	32	32
Blindness	0	0
Double vision	6	2
Tinnitus	38	23
Hearing	15	23
Burning throat	3	3
Burning tongue	9	6
Burning rectum	9	8
Any burning‡	12	12
Dyspnea	77	77
Palpitation§	35	68
Chest pain	44	32
Anorexia	100	91
Nausea§	32	56
Vomiting	12	27
Indigestion	29	39
Abdominal pain	35	39
Weight change	88	88
Constipation	59	61
Diarrhea	38	32
Urinary frequency	71	55
Libido increased	4	10
Libido decreased§	83	53
Libido no change	13	35
Libido increases and decreases	0	3
Paresthesias	47	56
Paralysis	0	2
Back pain	35	41
Joint pain	29	30
Extremity pain	15	30
Spells§	47	70
Weakness	50	56
Sleep	91	100
Crying§	53	82
Hysterics	100	100
Irritability	74	75
Energy	97	99
Temper increased	32	35
Temper decreased	24	20
Temper no change	44	40
Drinking increased	36	23
Drinking decreased	12	25
Drinking changed§	79	48
Drinking no change§	21	52
Suicidal thoughts	50	42
Fear of death	32	3
Fear of fainting§	9	31
Fear of losing mind	56	67
Poor concentration	82	83
Clarity of thought increased	3	3
Clarity of thought decreased	58	55
Clarity of thought changed	61	59
Clarity of thought no change	39	42
Retardation of thought	41	50
Change of ideas	3	9
Speed of thinking increased	3	6
Speed of thinking decreased	73	61
Speed of thinking no change	24	33
Distractibility	9	6
Memory	50	54
Hallucinations	0	11
Delusions	32	27

* Mean age 49 1 yr
† Mean age 47 7 yr
‡ *Percentage of patients with burning of throat tongue or rectum*
§ Difference between proportions of men and women was significantly different i e significance ratio greater than 2

In some cases the events that were said to be causal had not actually happened In one case there was an imaginary pregnancy Another patient felt that poor business was the trouble, when objective evidence suggested that business had never been better for this patient These "causes' were obviously not convincing Eleven per cent of the manic-depressive patients and 6% of the medically sick controls had deaths in the family within a year of the onset of the illness—the difference not being statistically significant Neither infection nor pregnancy occurred as a precipitating event

Consequences of Illness—In about a quarter of the manic-depressive patients, (24 of 100) there was evidence, either from the patient's statement or from outside information, that the illness had led to rather disheartening events, personal difficulties, or unfortunate decisions One patient wrongly believed that his son had committed a crime and called the police, another sued friends, a candy company, and planned to sue a taxicab company with no clear-cut justification Two patients were involved in automobile accidents, one while unreasonably irritated, another's business actually suffered In three, marital infidelity occurred after the onset of symptoms Excessive drinking was a problem in eight patients In one this led to the husband s and daughter's threatening to leave home, and in another alcoholic hallucinosis appeared Two had teeth removed for symptoms of depression One purchased a home in May and sold it in February when he felt he had made a mistake One changed jobs 30 times in a period of about five years, another married a woman who was eight months pregnant by another man in order to obtain 'grace " One gave up his job, and another lost his job These are apparent consequences, some simple and some bizarre, in patients with manic-depressive disease In contrast, in the medically ill patients, two had retired from work because of illness This demonstrates that manic depressive disease causes profound personal and social disruptions in the lives of its victims

Comment

This paper describes clinical observations in 100 patients with manic-depressive disease The question immediately arises as to whether all these patients did, in fact, have manic-depressive disease At present, one cannot go beyond saying that the patients had a psychiatric illness, that no other diagnosis could be made at the time nor could be made later to explain the symptomatology, and that the symptoms used in the systematic method of selection were those commonly referred to by students of the subject [2] as symptoms of manic-depressive disease Exact and final diagnoses for each case must await crucial diagnostic tests, which as yet have not been developed No chemical, anatomic, or psychological tests give reliable diag nostic information in this disease The methods of selection led to fairly consistent results Diagnoses in all the cases were believed to be manic-depressive disease by the method of best clinical impression, an approximation of what a clinically experienced psychiatrist tries to do Eighty-three per cent of the cases fulfilled both selection criteria, the best-clinical-impression method and also the systematic method No cases were admitted simply as undiagnosed cases, although this was possible according to the methods of selection

Classification—No attempt was made in selection to divide patients into those with manic-depressive disease and those with involutional melancholia, as the directions for making this separation contained in textbooks did not seem sufficiently clear We felt that a few of the patients were obviously more manic than they were depressed, but many of the patients had many of the features commonly associated with "depressive" disease but a few of the features, such as overactivity and overtalkativeness, supposedly associated with "manic" disease We have preferred to use the term "manic-depressive disease" rather than "manic-depressive psychosis' The term "psychosis' has so many meanings—that the patient is committable, that the patient has symptoms such as delusions and hallucinations, that the patient is "insane,' and that the patient does not understand the "nature of reality,' among others Since these various meanings of 'psychosis" are not necessarily consistent with each other, since many patients with manic-depressive disease do not fall into any of the above meanings of "psychosis," being merely patients who are tired and have insomnia, headache, and nervousness, and since understanding the "nature of reality' requires more confidence in one's understanding than some of us feel is necessary for simple psychiatric diagnosis, it seemed to us that the term "disease," implying that the patient is sick, nothing more and nothing less, was a better word

Chief Complaints—The information from the questionnaire is comparable to that obtained by a good doctor taking a history in a thorough manner Therefore, the information gained in this systematic way should be useful to the physician who uses history as an indispensable tool of diagnosis A few points should be emphasized about chief complaints and symptoms The chief complaints are noteworthy in that many of them are quite local medical complaints such as upset stomach, "pressure in my throat" and "bowels, they won t move," along with general medical complaints, such as being tired or exhausted Table 2 shows that the chief complaints of localized medical nature are much higher in frequency in the medically sick controls However, as far as general symptomatology of the present illness is concerned, it appears that local medical symptoms occur about as frequently in a group of manic-depressive patients as in a group of patients with assorted medical diseases Table 2 suggests that the chief complaint of patients with manic-depressive disease is that of psychological abnormality in more than half the cases This is in sharp contrast to the medically ill patients, in whom a chief complaint of psychological abnormality is unusual These facts should be helpful in accurate diagnosis When patients with definitely diagnosed medical disease have chief complaints, such as 'no interest,' "can't concentrate,' "I am just all gone,' and "unhappy," it is probable that the patient has two diseases, the medical illness and also manic-depressive disease

Table 10—*Frequency of Some Symptoms of Present Illness in 100 Patients with Manic-Depressive Disease, 134 Patients with Anxiety Neurosis, and 50 Patients with Hysteria*

Symptoms	Manic Depressive Patients %*	Patients with Anxiety Neurosis %†	Female Patients with Hysteria %‡
Headaches	49	65	94
Blurred Vision	32		62
Blindness	0	0	20
Double Vision	3		10
Dyspnea	77	65	70
Palpitation	56	94	76
Chest Pain	36	81	
Anorexia	94	36	78
Nausea	48		82
Vomiting	22	31	82
Abdominal Pain	38		78
Weight Loss	73	72	
Constipation	60		54
Diarrhea	34	31	46
Urinary Frequency	60	32	
Paresthesias	53	53	80
Paralysis	0	0	33
Back Pain	39		56
Joint Pain	30		28
Extremity Pain	25		62
Anxiety Attacks	33	70	74
Fainting Spells or Faintness	2	77	50
Weakness	54	70	
Dizzy Spells	29	83	72
Insomnia	94	70	
Weeping (Females)	54		78
Irritability	75	91	
Fear of Death	35	42	

* Mean age 48 2 yr
† Data from Cohen White and Johnson [4a] Mean age 39 03 yr
‡ Data from Purtell Robins and Cohen [5] Mean age 37 5 yr

Symptoms—The symptoms of manic-depressive disease obviously are many in number (table 3) and involve many medical as well as psychological abnormalities The high number of symptoms of the medical type has been pointed out before by Stone,[10] Campbell,[11] and others Stone emphasizes the frequency with which patients with this disease are treated for other illnesses before the diagnosis is finally appreciated It is probable that the difficulty in diagnosis is contributed to by the high number of medical symptoms In addition, it seems that many physicians expect that the patient with manic-depressive disease should have had (*a*) a previous attack and (*b*) a manic attack in addition to a depressive attack The truth of the matter is, however, whether one uses the terms "manic-depressive disease," or "melancholia,' or both, the facts seem to be that many patients with this disorder, when seen by a physician, have not had a previous attack and have never had a manic attack [2a] The patients in our group show an even lower proportion of characteristic manic attacks (6% of the 100) than those in the literature, but this might be accounted for by the nature of our psychiatric service, which was not oriented toward the combative or obstreperous patient A Massachusetts state hospital admitted 48 manic-depressive patients during the same calendar year as that of this study Twenty-one per cent of them showed predominantly manic reactions [12] Kraepelin called 16 6% of 899 patients with this disease manic Of special interest in manic-depressive patients is the fact that in about a half or more the symptoms—headaches, dyspnea, palpitation, anorexia, nausea, weight loss, constipation, urinary frequency, diminished sex function, paresthesias, and "spells"—occur. These 'spells' (table 5) include so-called anxiety attacks, spells with giddiness and dizziness, and spells of confusion. Spells of these kinds are very unusual in medical disease and suggest either manic-depressive disease or other psychiatric diseases, such as anxiety neurosis (neurocirculatory asthenia) (table 10) or hysteria. Paresthesias and assorted pains are also common in these disorders.

Symptoms of a more psychological nature include insomnia, with special emphasis on early morning waking. Patients also complain characteristically that their sleep is not good sleep or not restful sleep. Suicidal thoughts were admitted by almost half the patients in their questionnaire interview. It is probable that in clinical practice the occurrence of this symptom is much higher. Fear of losing mind is a characteristic symptom of manic-depressive disease, as well as feelings of fear of death and fear of fainting, which are also seen in anxiety neurosis (neurocirculatory asthenia) and hysteria.[12A] Statement by the patient of poor concentration, unclear thinking, slower thinking, and poor memory are common symptoms of depression and are not often seen in medical disease. Finally, signs of untidiness, immobile facies, and tremor of the outstretched fingers are common in depression and occur only rarely in medically ill patients. The data suggest, therefore, that, although many symptoms occur in manic-depressive disease, some are special features. A diagnosis should not be missed if appropriate inquiry is made of the patient.

Our investigation of the history of patients with manic-depressive disease did not coincide with our clinical impression or the clinical impression of others[2d] that there is a psychologically typical person who gets manic-depressive disease. Study of the person before disease occurred, as is done retrospectively, involves the difficult problem of deciding whether symptoms in the past represent "character" or previous attacks of the illness. Perhaps this will never be decided until there are objective and quantitative methods of deciding about manic-depressive "personality" as contrasted with manic-depressive disease. At present state of knowledge, it is possible that a follow-up study of patients believed to have the crucial characteristics of the manic-depressive personality might yield some information as to what proportion of these individuals actually later develop manic-depressive disease, as compared to patients who do not have this kind of personality. An opinion on this could profitably be postponed until such data are actually collected.

There seemed no practical way to divide these patients into groups of patients with melancholia and those with manic-depressive disease. Meyer[13] suggested that the term "melancholia" be dropped. Over the centuries the term 'melancholia' has been used in an ill-defined manner, in its earliest days, perhaps, to mean nothing more specific than insanity and in later years to denote some variety of depression that came on later in life and in some way was related to the female menopause. Various special meanings of this term have been used, and sometimes the meaning is not clear at all, but, traditionally, psychiatric writers have felt that it is proper to separate 'manic-depressive disease' from "melancholia," although they never made it clear what they were separating from what. In this study women over 45 years of age having their first attack did not show any symptomology different from the rest of the patients in the study. Dreyfus'[14] detailed monograph on 85 well-studied cases shows no basis for a separation of "melancholia' from 'manic-depressive disease." At the date of writing the present report, it would not be possible to prove whether manic-depressive disease is one disease or many diseases. Until an objective method of diagnosis or the cause is discovered, arguments as to whether one condition is the same as another or different are rather useless vocabulary exercises, and it is possible that there is enough of this particular activity in psychiatry already. Nor will evoking cliches such as 'multiple causation" add anything more than more words to the problem. Our studies do not settle the problem in any way, they simply suggest that the attempt to separate manic-depressive disease from so-called involutional melancholia does not seem feasible from the data, and the literature does not solve the problem either. The genetic approach thus far seems the most promising[1] but still has not settled the question, possibly because of difficulties with precise clinical diagnosis. It is even possible that the group of cases described here as instances of manic-depressive disease may constitute a number of different illnesses.

The connection with alcoholism was striking. This has been noted before, Slater[22] pointed out that 10.7% of fathers of manic-depressive patients were alcoholics. Kraepelin stated that alcoholism was seen in the parents of patients with manic-depressive disease, but he did not give supporting data. He also noted that alcoholism occurred in about a quarter of the male patients. Stenstedt[7] found 5.3% of fathers of manic-depressive patients were alcoholics and believed this was not a significant finding, but he had no control data. In this study, as in Kraepelin's studies, some of the patients with clear-cut manic-depressive disease also could have been referred to as 'alcoholics.' The fact that a number of patients increased their alcohol consumption while they were ill with manic-depressive disease suggests the obvious possibility that these patients take alcohol as a preferred medication for their symptoms.

Nothing thus far has been said about the cause of manic-depressive disease. Our studies did not bear on the matter. We found it difficult even to corroborate the notion that "precipitating events" are common in manic-depressive disease. It can be seen that, although patients, like psychiatrists, express definite opinions as to what brought on illness, the patients, like some psychiatrists, do not have conclusive data to support their opinions. In some patients nothing that even sounded like a precipitating event was forthcoming, and in others events that had happened after the onset of the illness were referred to as precipitating events. In some cases what were called precipitating events were obviously consequences of the illness In some patients the events had not happened at all, as in one patient who believed that her illness was brought on by pregnancy The patient did not happen to be pregnant Pregnancy did not emerge as an obvious precipitating event, although no intensive study of this was made Deaths were not statistically more common preceding depressions than they were before medical disease Deaths have also been said, without adequate controlled data, to be the psychogenic factor in ulcerative colitis [10] as well as in depressions, but there was also no evidence of that here Thus far the literature on the origin of manic-depressive disease suggests that there must be a strong hereditary factor in the disease A summary of studies on twins [15A] suggests that a high proportion of identical twins of manic-depressive patients have the disease, in contrast to a significantly lower rate in fraternal twins of manic-depressive patients

Over the centuries various attempts have been made to explain symptoms and their mechanisms, beginning with the four ancient humours (Hippocrates and Burton [1]) The following statement on "melancholia" is from a 19th century "school" that of Freud [18]

> Our material here is limited to a small number of cases the psychogenic nature of which was indisputable We have elsewhere described how object-choice develops from a preliminary stage of identification the ego first adopts an object and the ambivalence in which this is expressed The ego wishes to incorporate this object into itself, and the method by which it would do so, in this oral or cannibalistic stage, is by devouring it Abraham is undoubtedly right in referring to this connection the refusal of nourishment met with in severe forms of melancholia On the assumption that the results of observation would accord with our inferences, we should not hesitate to include among the special characteristics of melancholia a regression from object cathexis to the still narcissistic oral phase of the libido

Such statements might conceivably explain the symptom "refusal of nourishment," but, even if Abraham is 'undoubtedly right" about "refusal of nourishment," it is not clear that the explanation offered would also explain dyspnea, palpitation, tinnitus, urinary frequency, insomnia, and the three score and more symptoms listed in table 3 Actually statements such as the above quotation have no clear meaning to begin with, have no basis in fact, and are examples of a type of unscientific thinking from the last century that is still prevalent in some localities

Consequences—One should point out and reemphasize the problem of the consequences of manic-depressive disease Often these are thought of carelessly as the "causes' or precipitating events Besides suicide and alcoholism, patients with this disease resign their jobs, sell their homes, get divorces, or make unfortunate, inappropriate decisions A physician should be aware of this type of abnormal behavior in this disease Thus, preventive psychiatry cannot today protect an individual against this disease or prevent a recurrent attack However, accurate diagnosis and proper management should prevent the unfortunate consequences

It is believed that, if physicians will examine patients for the symptoms and signs described here, they will find in their practice many patients who have manic-depressive disease Many ill-defined diagnoses, such as "neurotic" and "psychosomatic,' should disappear with careful examination, and both the individual patient and medical science will benefit

Conclusions

Manic-depressive disease is one of the commonest of psychiatric diseases This fact may be obscured by the multiplicity of symptoms, often mistakenly interpreted as revealing medical disease or "neurosis' The textbook picture of manic excitement alternating with "retarded depression" is the unusual rather than the usual manifestation of this disease, as suggested by the data of this study and the factual psychiatric literature It is possible that the picture of the disease seen in office practice and on "acute" psychiatric wards may differ from that of the very severe case seen in state hospitals and sanatoriums

The medical symptoms of the illness (head, cardiovascular, gastrointestinal, genitourinary, neuromuscular) occur in about the same frequency and distribution as in patients on a ward of medically sick patients The manic-depressive patients, however, show a high frequency of psychological and mood disturbances, such as poor concentration, irritability, suicidal thoughts, feelings of "slow thinking," fears, including fear of "losing mind," and abnormal mood These symptoms are rare in medically ill patients The medical and personal history of manic-depressive patients before the first episode of disease does not differ remarkably from that of medically ill patients Events or difficulties that could reasonably be considered as causal or as precipitating events were rare, but patients described frequently what we consider as symptoms or consequences of the illness as "causes" In the manic-depressive group were found patients diagnosed as alcoholics, who it seemed were using alcohol as a therapeutic agent, i e, to make them feel better It is also noteworthy that, in fathers and brothers of manic-depressive patients, there is a higher prevalence of alcoholism than in the fathers and brothers of control subjects, those both medically sick and healthy

Manic-depressive disease can be diagnosed by the usual medical procedure of using history, examination, and laboratory data Clinical observations, rather than unproved psychological theories, should be used as the basis of differential diagnosis and of selection of patients for scientific research in this disease

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Statistical calculations for this study were made by Mrs Dian Fortunato

Because of space limitations, some of the bibliographic references have been omitted from THE JOURNAL They, as well as appendixes 1 and 2, are included in a complete manuscript, deposited with the American Documentation Institute, Auxiliary Publications Project, Photoduplication Service, Library of Congress, Washington 25, D C

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MASS SCREENING OF THE TOTAL FEMALE POPULATION OF A COUNTY FOR CERVICAL CARCINOMA

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B Lester Harbin, M D, Rome, Ga

• Cytological examinations were carried out on smears obtained directly from the endocervical canal with the aid of a speculum or less directly by using a special cancer detection tampon The 17,761 women so studied by 27,894 smears represented practically the entire female population over the age of 19 years in the county Cancer cells were found in the specimens of 117 patients, biopsy material was obtained from 84 of these Carcinoma in situ was found in 56 women (2 of whom were 19 years of age) and invasive carcinoma was found in 28 The average age of women with carcinoma in situ was 39, that for carcinoma in situ with early invasion, 41 6, and that for frankly invasive cancer, 47 8 For the total white female population the prevalence rate of cervical carcinoma in situ was 2 8 per 1,000 and for invasive cancer 1 4 per 1,000 To determine the true incidence rate for cervical carcinoma in situ, repeat examinations were carried out over a period of four years on women known not to have had a cervical lesion at the time of the first examination The data for incidence indicated that, in every 1,000 women, 1 8 new cases of cervical carcinoma in situ developed each year There was reason to believe that the figures for prevalence and incidence obtained in this county would be valid for the United States as a whole

The screening of the female population of Floyd County, Georgia, for cervical carcinoma was instituted in September, 1951 At that time the value of the cytological method for the detection and diagnosis of cervical cancer was well substantiated by numerous investigators [1] Theoretically, it appeared that carcinoma of the cervix uteri could be eradicated by the routine application of the cytological technique However, several important factors in regard to screening techniques and rate of development for this type of cancer were unknown

To control this disease the diagnosis has to be made in the curable stage, in which the carcinoma is noninvasive and usually asymptomatic No information was available as to how many such intraepithelial lesions develop in the female population each year Therefore, this project of mass screening was planned primarily for the purpose of ascertaining true incidence rates for cervical carcinoma Once this was known, the cost of cancer control and the frequency at which the test should be performed could be established Floyd County, Georgia, was chosen for its static population of approximately 15,000 to 20,000 women above the age of 19 years

Method of Investigation

An attempt was made to reach women of all social and economic strata in the county, with particular emphasis on those without complaints All efforts were directed toward obtaining an adequate cross section of the female population by intensive publicity The Georgia State Health Department provided posters pamphlets, and health educators to carry the message to such places as homes, churches, and women's clubs The local chapter of the American Cancer Society cooperated in the program by the arrangement for publicity through newspapers, radio, television, clubs, and churches and in the enlistment of volunteer workers

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Read before the Section on Obstetrics and Gynecology at the 106th Annual Meeting of the American Medical Association New York, June 7, 1957

Routine examinations were carried out in a special cancer detection center for indigent persons A full-time public health nurse was engaged to assist in the examination of all employees in the cotton mills and other factories Smears were taken routinely in the offices of 27 physicians in Floyd County Materials necessary for the test were supplied to the physicians twice weekly, at which times the smears were collected (see figure)

Cytological Technique—After insertion of a speculum, the smears were taken with a cotton applicator directly from the endocervical canal This method was employed in order to obtain the highest degree of accuracy To omit the introduction of a speculum may result in a loss of about 50% accuracy when material is taken from the posterior fornix[2] Possibly mass screening for cervical carcinoma of the female population may be carried out in a shorter period if the use of a speculum is not required That this would compensate for the number of women who would thus escape detection of a potentially malignant lesion is doubtful Furthermore the introduction of a speculum assures inspection of the cervix in each case

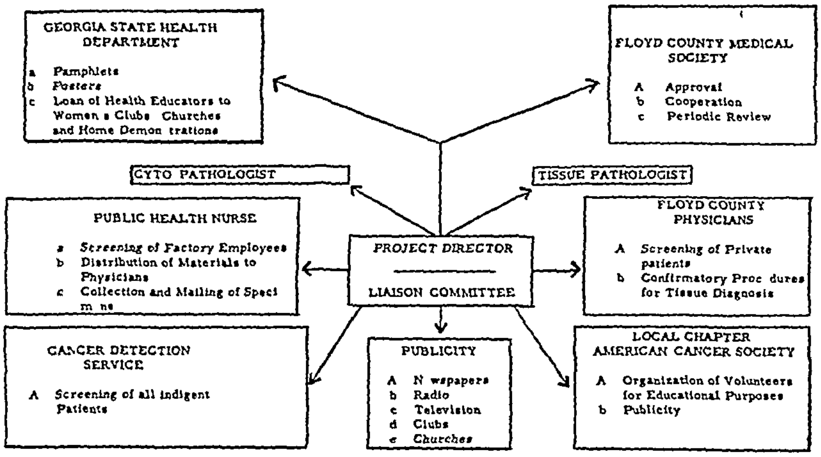
A copy of each suspicious or positive report was mailed to the local pathologists, while a copy of the tissue diagnosis along with a duplicate of the tissue section was received by the project director in each case In the beginning of the screening project, the smears were fixed in ether alcohol and preserved in glycerin for mailing This procedure became unnecessary when a process of rehydration was elaborated which permits the drying of smears in air and mailing them without preservation in glycerin[3] In order to further increase the number of tests, an especially prepared cancer detection tampon with a device for automatic preparation of the smear was distributed to the population[4]

Evaluation of Data—The value of a screening program for cancer is determined by the number of carcinomas detected in relation to the number of women examined for a given period However, a large number of variable factors enter into the analysis of such data, each of which factors may affect the statistics considerably Nothing short of a complete statistical analysis will do justice to an investigation of this importance Adequate evaluation can only be made if the proportion is known of the number of women tested according to such factors as routine or selective screening, age group, race, and social stratum In addition, it is significant to consider the technique of the test employed, the criteria applied for cytological examination, the type of biopsy performed, and the criteria for the histopathological diagnosis

With the help of the Division of Cancer Control and Research and the Bureau of Records and Statistics of the New York City Department of Health, IBM punch cards and machines were used in the analysis of the data from the Floyd County project The results of 27,894 examinations are presented here in the form of prevalence tables, an incidence table, and a table showing intervals from stage to stage of development

Prevalence, stated simply, means the number of cases of a given disease present in the population at a given time It is customary to indicate prevalence in the form of a rate, specific for selected age groups Such rates do not indicate how long the disease has been present nor the rate of development "Prevalence rates" should not be confused with "incidence rates," which may be used erroneously to express prevalence of a disease Tables 1 and 2 show prevalence in terms of what was found on the first examination of the women screened

Incidence, stated simply, means the number of new cases of a disease which develop in a specified time, usually a year, in a population group of a given size that was known not to have the disease at the time of the first examination[5] It is customary to express incidence as a rate per year specific for selected age groups The rate may be expressed as a percentage or in terms of the most appropriate unit for the denominator The incidence rates presented in table 3 were arrived at from the 'life table' derived from the follow-up or repeat examinations of 4,482 white women, each of whom had had negative results on the first examination and had been followed up for at least six months The length of follow-up ranged from six months to four years


GEORGIA STATE HEALTH DEPARTMENT
a Pamphlets
b Posters
c Loan of Health Educators to Women s Clubs Churches and Home Demon trations
FLOYD COUNTY MEDICAL SOCIETY
A Approval
b Cooperation
c Periodic Review
CYTO PATHOLOGIST
TISSUE PATHOLOGIST
PUBLIC HEALTH NURSE
a Screening of Factory Employees
b Distribution of Materials to Physicians
c Collection and Mailing of Speci m ns
PROJECT DIRECTOR
LIAISON COMMITTEE
FLOYD COUNTY PHYSICIANS
A Screening of Private patients
b Confirmatory Proc dures for Tissue Diagnosis
CANCER DETECTION SERVICE
A Screening of all indigent Patients
PUBLICITY
A N wspapers
b Radio
c Television
d Clubs
e Churches
LOCAL CHAPTER AMERICAN CANCER SOCIETY
A Organization of Volunteers for Educational Purposes
b Publicity

Organization of mass screening program, Floyd County, Georgia, 1951 to 1955

Average duration from stage to stage of development (table 4) was derived simply by taking an average of the number of months between significant examination dates A total of 590 women in whom results were negative on first examination and who had completed less than six months of follow-up were omitted from this table Among these women were found six cases of carcinoma in situ and two cases of invasive carcinoma None of these data are included in the incidence table

The unit of exposure is the customary 'person-year" This is the equivalent of one person followed for one year As is customary, it is assumed that withdrawals and significant conditions occurred uniformly throughout the period Withdrawals have been treated as having occurred, on the average, midway between the last negative examination and the completion of the observation year Significant findings have been treated as having occurred, on the average, midway between the first borderline finding date and first positive finding date If no borderline findings were reported, positive cases were assumed to have occurred midway between the last negative date and the first positive date Length of observation was reported in months and converted to years simply by dividing the total months by 12 The number of person-years for the Negro women screened is too small to permit any valid comparison with findings among white women

Criteria for Diagnosis—In the cytological interpretation, all slides which failed to reveal endocervical material were designated unsatisfactory" Cellular changes were recorded according to the epithelial layer of cellular origin and the degree of cellular alteration This was reported as indicative of slight, moderate, or marked epithelial dysplasia or suggestive of either carcinoma in situ or invasive carcinoma or simply carcinoma Recommendations were made to repeat the examination either immediately or in 3, 6 or 12 months, unless immediate biopsy specimens were requested

TABLE 1—*Prevalence Rates in Terms of Findings on First Examination of the 17,761 Women Screened in the Floyd County, Georgia, Project, 1951-1955*

Age Group	Women No	Borderline Changes		Carcinoma in Situ: Confirmed		Carcinoma in Situ: Unconfirmed		Invasive Carcinoma		Carcinoma in Situ and Invasive Carcinoma		Confirmed Carcinoma in Situ and Invasive Carcinoma	
		No	Rate/1 000	No	Rate/1 000	No	Rate/1 000	No	Rate/1 000	Total No	Rate/1 000	No	Rate/1 000
Under 20	1 064	7	6 6	2	1 9					2	1 9	2	1.9
20-30	6 256	23	3 7	10	1 6	9	1 4	2	0 3	21	3 3	12	1 9
31-40	4 908	23	4 7	17	3 4	12	2 4	9	1 8	38	7 7	26	5 [illegible]
41 50	3 267	8	2 4	18	5 5	6	1 8	6	1 8	30	9 1	24	7.3
51 60	1 411	7	5 8	4	2 8	4	2 8	4	2 8	12	8 4	8	5 6
Over 60	855	6	7 0	5	5 8	2	2 3	7	8 2	14	16 3	12	14 0
Total	17 761	74	4 2	56	3 9	33	1 8	28	1 6	117	6 6	84	4 7

TABLE 2—*Prevalence Rates in Terms of Findings on First Examination of White Women Screened in the Floyd County, Georgia Project, 1951-1955*

Age Group	Women No	Borderline Changes		Carcinoma in Situ: Confirmed		Carcinoma in Situ: Unconfirmed		Invasive Carcinoma		Carcinoma in Situ and Invasive Carcinoma		Confirmed Carcinoma in Situ and Invasive Carcinoma	
		No	Rate/1 000	No	Rate/1 000	No	Rate/1 000	No	Rate/1 000	Total No	Rate/1 000	No	Rate/1 000
Under 20	935	5	5 3	1	1 1					1	1 1	1	1.1
20-30	5 815	19	3 3	7	1 2	7	1 2	1	0 2	15	2 5	8	1 3
31-40	4 638	21	4 5	13	2 8	8	1 7	8	1 7	29	6 4	21	4 5
41 50	3 077	7	2 3	17	5 5	6	1 9	5	1 6	28	9 1	22	7 0
51 60	1 333	6	4 5	4	3 0	4	3 0	8	2 3	11	8 3	7	5 3
Over 60	806	5	6 2	5	6 2	2	2 5	6	7 4	13	16 1	11	13 6
Total	16 604	63	3 8	47	2 8	27	1 6	23	1 4	97	5 8	70	4.2
Total Negro	1 157	11	9 5	9	7 8	6	5 2	5	4 3	20	17 3	14	1[illegible] 1

The biopsy material was submitted to the Floyd County pathologists, Drs Stergus and Peterson Serial sections were cut in the case of positive smears A diagnosis of carcinoma in situ was made when all changes which occur in the presence of invasive cervical carcinoma, except for invasion of the underlying stroma, were found

Results

Prevalence Rates—From September, 1951, to December, 1955 a total of 27,894 tests were carried out in Floyd County on 17,761 women Of these, 16,604 were white and 1,157 were Negro women Repeat examinations at periodic intervals were performed on 4,716 women, of whom 234 were Negroes The number of examinations carried out by the Floyd County physicians and the public health nurse by direct collection of the material from the endocervix was 25,422, while 2,472 smears were obtained by the cancer detection tampon method

Total Female Population—Of the 17,761 women screened, the smears of 117, or 6 6 per 1,000, were found to contain cancer cells (table 1) Biopsy specimens were requested for these women, and confirmation to date is available on 84, or 4 7 per 1,000 Carcinoma in situ was found in 56 women, or 3 9 per 1,000, and invasive carcinoma in 28, or 1 6 per 1,000 In 33 cases, or 1 8 per 1,000, the presence of carcinoma has not been confirmed to date Two cases of carcinoma in situ were present in women 19 years of age, in 74 patients, or 4 2 per 1,000, borderline changes were detected by cytological evaluation

The development of cervical carcinoma appears to be age-specific Therefore, all rates should be presented and evaluated according to age groups The largest number of cases of carcinoma in situ occurred in the age group 41-50 at a prevalence rate of 5 5 per 1,000 and in the age group over 60 at the rate of 5 8 per 1,000, while invasive carcinoma was found at the highest rate of 8 2 per 1,000 in the age group over 60 A total of 73% of these women harbored a carcinomatous lesion which was not suspected Carcinoma in situ was asymptomatic in 92%, while invasive carcinoma was unsuspected in 35% of cases

White Female Population—A total of 16,604 white women were examined for cervical carcinoma (table 2) Ninety-seven smears, or 5 8 per 1,000, contained malignant cells, on which basis biopsy specimens were requested Carcinoma was found in tissue sections of 70, or 4 2 per 1,000 cases In these, a diagnosis of carcinoma in situ was made in 47, or 2 8 per 1,000, while invasive cancer was present in 23, or 1 4 per 1,000 Borderline changes according to cytological evaluation were detected in 63, or 3 8 per 1,000, specimens The diagnosis of carcinoma in situ was made without subsequent confirmation by tissue diagnosis Five of these patients had negative smears after negative biopsy findings, while in three patients cancer cells were persistently found after biopsy specimens had failed to reveal malignancy In three cases no biopsy specimens were obtained to date

Table 3—*Significant Findings on Repeat Tests of 4 482 White Women Whose First Examination Had Been Negative and Who Had Completed at Least Six Months of Follow up 1951-1955*

			Carcinoma in Situ				Early Invasive Carcinoma		Carcinoma in Situ and Invasive Carcinoma		Confirmed Carcinoma in Situ and Invasive Carcinoma	
			Confirmed		Unconfirmed							
Age Group	Women No	Person Years Observed Total No	No	Rate/1 000 Person Yr	No	Rate/1 000 Person Yr	No	Rate/1 000 Person Yr	No	Rate/1 000 Person Yr	No	Rate/1 000 Person Yr
Under 20	251	437										
20-30	1 688	3 182	5	1 6	3	0 9	1	0 3	10	3 7	7	2 2
31-40	1 207	2 644	2	0 8	5	1 9	1	0 4	8	3 0	3	1 1
41-50	780	1 624	2	1 2	3	1 8	1	0 6	6	3 7	3	1 8
51-60	324	680	3	4 4			1	1 5	3	4 4	3	4 4
Over 60	142	295										
Total	4 482	8 862	12	1 3	11	1 2	4	0 4	27	3 0	16	1 8

peak for carcinoma in situ appears in the age group 41-50 at a rate of 5 5 per 1 000 and again in the age group over 60 at a rate of 6 2 per 1 000 Invasive carcinoma was found at the highest rate of 7 4 per 1 000 in the age group over 60

Negro Female Population—In view of the small number of Negro women examined, a breakdown into age groups was omitted The over-all prevalence rate for carcinoma in situ appears to be 7 8 per 1 000, while that for invasive carcinoma is 4 3 per 1,000 (table 2) Thus, the total rate for cervical carcinoma in the Negro population is 12 1 per 1 000

Reexamination and Follow-up

Of the 16,604 white women who were screened for cervical carcinoma, 4,482 women who had negative findings on the first examination had a total of 9 309 repeat tests at periodic intervals from 1952 to 1955 Only the women who had repeat examinations at intervals of six months or longer are included in the follow-up series Likewise, the patients who developed cervical carcinoma in a period less than six months after their first negative examination were omitted from these data (table 3)

Twelve of the women with repeat examinations developed carcinoma in situ, while in an additional four signs of early invasion were present at the time the tissue diagnosis was made According to the person-year table (table 3), the incidence rate of cervical carcinoma in situ appears to be 1 8 per 1,000, with the highest incidence of 4 4 per 1,000 in the age group 51-60

The 16 cases of carcinoma represent 3 5 per 1,000 which developed during an average period of 25 3 months This suggests that 1 68 per 1,000 new cases of cervical carcinoma developed in this population group every year In 9 of the 16 patients with carcinoma, borderline changes were noted after the first negative finding before cancer cells could be found in the subsequent biopsy specimens In three of the remaining seven patients, negative smears were obtained repeatedly before a positive diagnosis was made In 11 patients a cytological diagnosis of carcinoma in situ was made without subsequent confirmation by tissue diagnosis

Repeat smears and positive tissue findings are available on eight women in whom the first smear revealed atypical cells which were interpreted to derive from borderline epithelial changes These cases however, were omitted from our incidence table The average period of observation in this group was 5 8 months

Self-Obtained Dry Smears

An attempt was made to increase the number of examinations by the use of a specially designed tampon[4] About 11,000 tampon kits were distributed in Floyd County Over a period of about two months, 2,472 pairs of smears were returned to our laboratory Seven hundred two, or 28%, of these were considered unsatisfactory according to our standards, since they failed to contain endocervical material, although there was an abundance of squamous cells of vaginal origin The number of smears with malignant cells on the basis of which biopsy specimens were requested occurred at the rate of 6 2 per 1,000, this compares favorably with the method of endocervical smears The detailed results of this phase of the investigation will be reported at a later date

Table 4—*Average Periods Between First Examination and Subsequent Diagnosis of Carcinoma in Situ or Invasive Carcinoma in White Women*

First Cytological Examination	Tissue Diagnosis (Cytological Evaluation for Borderline Changes)	Mo Av	Range in Mo
Negative	Borderline	17 3	4 30
Borderline	Carcinoma in situ	5 8	1 15
Negative	Carcinoma in situ	29 4	6-39
Negative	Carcinoma in situ with *early invasion*	28 2	21-40

*Final examination

Comment

The evaluation of this study must necessarily be influenced by the acceptance or negation of the basic principle of the entity "carcinoma in situ" Numerous reports in the literature attest to its significance as a forerunner to frank invasive cervical carcinoma[6] Furthermore, extensive analysis of the data presented on the Floyd County project suggests the importance of carcinoma in situ as a developmental stage of cervical carcinoma

In the 12 confirmed cases of cervical carcinoma in situ, the average time between the first negative finding and the development of borderline changes appears to be 17 3 months (table 4) In the group in which the first smear revealed borderline changes, the duration for the development of carcinoma in situ was an average of 5 8 months The total duration from the first negative examination to the diagnosis of carcinoma in situ with early invasion was an average of 28 2 months

The time intervals possibly synonymous with carcinogenic transformation are consistent in all four groups The average age of patients with carcinoma in situ is 39, that for carcinoma in situ with early invasion, 41 6, and that for frank invasive cancer, 47 8 The difference between these average ages, however, does not imply the duration of malignant transformation The number of women screened routinely in each age group varies considerably, and thus by this circumstance alone the average age is determined, unless corrected for an equal number of women screened in each age group

Whether any inference as to the carcinogenic process may be drawn from the comparison of the prevalence rates from tables 1 and 2 to incidence rates from table 3 is not certain Although the total number of women screened presents approximately the total number of female inhabitants above the age of 19 in Floyd County, a certain degree of active selection through physicians offices and screening programs in factories may have occurred In addition, a certain number of women routinely screened were available through self-selection induced by the publicity over radio and television and at women's clubs and churches The same factors apply to the group of women who submitted for repeat examinations Self-selection in this group may perhaps be associated with a different type of women than that type who had one single examination On the other hand, possibly a greater degree of active selection applies to this group, since a large number of women were reexamined in the cotton mills and other factories of Floyd County

It is not intended to imply in this presentation that the rates found in Floyd County through a mass screening program for cervical carinoma apply to the entire female population It may be stated, however, that these rates are probably an indication of what the true rates may be for the white female population of other areas

Summary

A program of mass screening was instituted in Floyd County, Georgia, for the detection of cervical carcinoma, with the object of determining by reexamination the true incidence indicative of the rate of development for this type of cancer In 15,289 cases, the endocervical smear technique which requires the introduction of a speculum was used An additional 2,472 women were examined with a specially designed cancer detection tampon During the project, the dry smear method was instituted, this allowed fixation of smears in air and mailing of them without preservation in glycerin Subsequent rehydration and fixation of smears were carried out in the laboratory

A total of 27,894 examinations were made on 17,761 women from September, 1951, to December, 1955 The total number of positive smears was 144, of which confirmation by tissue diagnosis is available to date on 100 cases On first examination a total of 4 7 per 1,000 patients were found to have cervical lesions, of those, 3 9 per 1,000 had carcinoma in situ and 1 6 per 1,000 invasive carcinoma In the white female population the total number of cervical lesions appeared to be 4 2 per 1,000, with a rate of 2 8 per 1,000 for carcinoma in situ and 1 4 per 1,000 for invasive carcinoma The highest rate for carcinoma in situ was found in the age groups 41-50 and over 60, while the peak for invasive carcinoma appeared in the age group over 60

On reexamination of 4,482 white women who had had negative findings by the first test, 3 5 per 1,000 were found to have carcinoma in situ after an average period of observation of 25 3 months This indicated that in every 1,000 women, 1 68 new cases of cervical carcinoma in situ had developed each year In four of these patients with carcinoma in situ, signs of early invasion were noted According to the "person year" table the incidence rate for cervical carcinoma in situ is 1 8 per 1,000 per year

A significant difference in duration appears to occur in different groups between negative findings to borderline changes, to carcinoma in situ, and to carcinoma in situ with early invasion and between borderline changes and carcinoma in situ Whether any inference can be drawn to the rate of malignant transformation of cervical carcinoma is not certain

It must be emphasized that the data reported apply to Floyd County and the circumstances under which the mass screening was carried out However, in consideration of the partly active selection and partly self selection of the women examined, the methods employed, follow-up studies, and age groups presented, it is suggested that these rates are indicative of what the true rates may be in the entire white female population over the age of 19 years in the United States

Beth-El Hospital Linden Boulevard and Rockaway Parkway (12) (Dr Nieburgs)

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SPINAL CORD INJURY—REHABILITATION COSTS AND RESULTS AND FOLLOW-UP IN THIRTY-ONE CASES

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• *Patients with paraplegia resulting from peacetime accidents are aided by the same programs of rehabilitation that were developed for the management of wartime cases A group of 31 patients with severe paralyses in the lower extremities after spinal cord injuries were admitted to a course of training in self-care and mobility, bowel and bladder control, and psychosocial and vocational adjustment Complications arising in 20 of the 31 patients necessitated additional surgical or medical care during the training period Each patient was studied again not less than one year after returning home At this time 13 were employed full time in jobs and 10 others were in vocational training programs preparatory to employment, as contrasted with 24 who had been unemployed and economically dependent before admission to the rehabilitation program The follow-up study demonstrated the sustained effectiveness of the physical and vocational rehabilitation for most of the patients The costs of the total program, including transportation to and from the rehabilitation center, have been computed and demonstrate its economic advantages To these economic considerations must be added many intangibles, especially the psychological gains to the patient and to the people in his immediate environment*

During World War II there were 2,500 cases of traumatic paraplegia in which successful medical management and eventual rehabilitation highlighted significantly the advances of recent decades in medical, surgical, psychiatric, nursing, psychosocial, and hospital care[1] This success in the treatment of the wartime cases brought attention to focus on the problems of civilian patients with paraplegia who, as a result of peacetime accidents, might also benefit from the application of these new techniques Hence, in the postwar years, agencies and individuals charged with the care of such patients have sought treatment for them in centers specializing in programs of total rehabilitation

This paper describes the immediate and follow-up rehabilitation results with an unselected group of 31 patients with spinal cord injury who were sent to the Institute of Physical Medicine and Rehabilitation of the New York University–Bellevue Medical Center by the Division of Vocational Rehabilitation of the Department of Education of the state of Georgia during the period December, 1950, to March, 1953 The group was comprised of adults ranging in age from 18 to 46 years who, as a result of injury to the spine, had sustained traumatic transverse myelopathy, 29 of the group had paraplegia and 2 quadriplegia

In the analysis of the procedures, complications, duration, costs, and results incident to a rehabilitation program for such a group of patients, it was considered desirable to study a group referred for treatment by a single responsible agency, it was felt that the interest of a single such agency in the eventual integration of the patient into the life of his home community would provide more uniform and precise data regarding the patients both during and after treatment In all of the cases reported, close cooperation was maintained with the patient s vocational counselor in his home state during rehabilitation treatment, and joint planning toward realistic vocational rehabilitation was carried out during this time by conference and correspondence This liaison was revived at the time of the

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Read before the Section on Physical Medicine at the 106th Annual Meeting of the American Medical Association New York, June 6, 1957 follow-up study, when a questionnaire was jointly devised to supply information on the physical, self-care, social, economic, and vocational status of each patient in the group after a period of at least one year after discharge from the rehabilitation program.

Method of Study

For the tabulation of data on the duration, costs, and results of rehabilitation training for this group of cases, the complete record of each patient from the institute was reviewed. In those instances where the patient had required medical or surgical treatment at the University Hospital of the New York University–Bellevue Medical Center in addition to physical rehabilitation at the institute, this hospital record likewise was screened. Appropriate data from these histories were then recorded for each case on separate study sheets. In addition, as a follow-up for the study, each patient in the group was visited in his home by a counselor of the Georgia Division of Vocational Rehabilitation. A prepared questionnaire was used in this direct interview, and the replies were recorded by the counselor and submitted to us for analysis.

Pretreatment Status of the Study Group

Age, Sex and Marital Status.—The patients' ages ranged from 18 to 46 years, with an average of 29 years. Twenty-six of the patients were males, 21 white and 5 Negro and 5 were white females. The average age of the male patients was 30 years and of the female patients, 24. Eleven male patients were married, one was separated, and 14 were single. All of the 11 married men in the group had children. One female patient was married, one was separated, and three were single.

Diagnosis, Extent, and Type of Disability.—All of the patients in this study group had sustained spinal cord injuries, with resultant paralysis of the lower extremities, two of the group with injury at the seventh cervical level were paralyzed in all four extremities. Sixteen patients had spastic and 15 flaccid paralysis.

Duration of Illness.—Five patients had been disabled for more than 10 years, five for more than 5 years but for less than 10, and nine from 2 to 5 years. Twelve had been disabled less than two years and, of these, seven less than one year.

Circumstances of Trauma.—Trauma had been the cause of disability in all 31 of these cases. Auto accidents accounted for 12, gunshot wounds for 9, blows from moving objects for 5, falls for 4, and a diving accident for one. Among the nine patients with gunshot injuries hunting accidents accounted for four, while five were the result of assault.

Previous Medical Care.—Every patient had had previous medical and surgical care in a local hospital. While records of previous medical care were not complete in every instance, the abstracts and records of previous care that were incorporated in the patients' records at the New York University–Bellevue Medical Center showed that the group had spent periods ranging approximately from three weeks to as long as three years under treatment in hospitals. The estimated average previous period of hospital care for the group was about four months. Twenty-two of the patients had had a laminectomy, and in more than half of these cases this surgery had been performed early, within the first 10 days after injury. Complicating urologic problems requiring surgery and decubitus ulcers had accounted for hospitalization in many instances.

While a few male patients had devised their own home-methods for self-care, previous definitive rehabilitation care and training had been available to only one-third of the group. With only one or two exceptions, the latter type of care and training had not been intensive and had not been geared to the total, i. e., the physical, social, and vocational, rehabilitation of the patient, such as was implicit in the referral by the Division of Vocational Rehabilitation to this specialized center for rehabilitation training.

Ambulation Ability.—At the time of admission, 22 of the patients, or two-thirds of the group, were incapable of any form of ambulation. Twelve of these patients were wheelchair-bound and 10 were bed patients. One patient had been bed-bound for nine years, another for five years. Of the nine patients capable of some ambulation on admission, four were moderately proficient in this function but were in need of further training; these patients had braces upon admission. Three other patients had been fitted with braces but were not proficient in using them, and the remaining two were classified as poor in their ability to walk.

Elevation Ability.—In the more difficult task of elevation, 23 were totally unable to make any step involving the lifting of the body from one level to another in the standing position. Eight of those patients who had some skill in ambulation also showed some skill in elevation, the degree of this skill was usually in proportion to their ambulation skill.

Self-care.—In activities of self-care, i. e., bathing, dressing, moving from bed to chair, 10 patients were totally incapable of self-care (except in self-feeding). Eleven were inadequate, while the remaining 10 were classified as fair or good in their self-care activities. As might be expected, those who were capable of limited ambulation were also better able to provide for their personal needs in toilet care, bathing, and dressing.

Bowel and Bladder Regulation.—Bowel and bladder regulation in varying degrees presented a problem to all of these patients at time of admission.

Appliances.—While braces had been previously prescribed for a few patients, the majority (26) were in need of bracing or rebracing.

Educational Background.—The average level of educational attainment for the group was ninth grade. Two of the younger patients, a young man and a young woman, had had some college training, while at the other end of the scale were two older men who had had no formal education. Eight in the group had completed high school training, 4 had had some high school training, while 12 had had only elementary schooling. Education information for three of the group was not available.

Vocational Background and Consequences of Disability.—Fifteen of the patients had been employed before injury as laborers in local industries, such as textiles and wood, or in farming four of these had been truck drivers serving local industries Ten of the group had held clerical, skilled, semiskilled, or sales jobs, six younger patients had had no work experience prior to becoming disabled Information about income prior to the onset of disability was not available in every case However, among the patients who were employed at the time of injury, the range of income was from $80 in one case to marginal earnings of $20 to $25 per week in several, with an estimated average of $35 to $40 per week

As a consequence of disability, the work lives of these patients had come to a virtual standstill Five had been able to carry on limited work in radio, electrical appliance, or watch repair from their homes One patient had been able to obtain regular employment suited to his capacities (county treasurer) and another to start a small business of his own (operating a wood and coal business) Only one patient was receiving a regular salary from an employer Seventeen patients previously gainfully employed were being supported at the time of their referral by earnings of family members or by public funds

Psychosocial Status—Twenty-nine of the patients in the study group lived in small detached homes, which in their own estimations were suitable to their needs Eight of the group either owned their own homes or lived with their parents in family-owned homes Twelve patients had been living with spouses and families prior to admission, 11 patients lived with both parents, 5 with the mother only, one with the father alone, and one with a brother Information was lacking in one case

As might be expected among a group of severely disabled patients such as these, there were many profound psychosocial problems—the consequence of years of hospitalization, dependence, inactivity, and frustration imposed by disability One female patient had become addicted to meperidine (Demerol) hydrochloride, others had lost hope of ever walking again or of being able to live independently Some had ceased to rebel against their enforced dependence and obtained security and satisfaction from close ties to their families

Course During Rehabilitation

Each of the patients, upon arrival at the institute, was examined thoroughly by a team of specialists His medical, orthopedic, urologic, neurological, and physical rehabilitation status was assessed, and psychosocial and vocational potentials were evaluated Rehabilitation goals were then tentatively projected, in terms of training in bed and wheelchair activities, ambulation, elevation, bowel and bladder care and other spheres of self-care, and an appropriate treatment program outlined The latter consisted of physical therapy, occupational therapy, remedial exercise, training in activities of daily living, prevocational exploration, and psychosocial assistance, as individually indicated

Self-care and Mobility—In the course of training there was marked improvement in self-care activities among all of the patients Improvement was universal in bed and wheelchair activities Even those patients who had been bed-bound for years were able to learn to move from bed to chair independently and to perform dressing and bathing functions in which they had previously needed much assistance Those patients who improved most in ambulation and elevation similarly made greater progress in areas of self-help, but for the whole group the concept of independence through wheelchair self-sufficiency was the core of the training program All of the patients except one were equipped with wheelchairs prescribed to their specific needs, the remaining patient no longer required a chair after his rehabilitation treatment

One facet of the self-care program that contributed to the independence and mobility of the patient was the training given for automobile travel By the time of discharge, 24 patients were taught to get in and out of a car unassisted, and 6 of these learned to operate a car with hand controls

During their rehabilitation training, 27 of the 31 patients accomplished some degree of proficiency in walking with braces and crutches and mastered some skill in elevation Of the four who did not achieve independent ambulation status, one was a female who preferred to concentrate on wheelchair self-sufficiency and refused ambulation training One male, an older patient, refused surgery to release the contractures that prevented adequate bracing for walking Weakness of upper extremities limited the progress of one young female patient and, similarly, made ambulation totally impossible for a quadriplegic youth Bracing in general consisted of double long-leg braces and pelvic bands, with additions of spinal cage supports depending upon the level of the spinal cord injury

Bowel and Bladder Training—Bowel and bladder training was attempted in all cases Nine of the patients were able to attain automatic bladder control, 20 patients preferred to use a urinal despite increased bladder control All 31 of the patients were able to markedly improve the function of both bowel and bladder control

Psychosocial and Vocational Care—The distance of the institute from homes and accustomed environments served as a stimulus to achievement to most of the group, while for a few the sense of insecurity brought about by separation from close family ties tended to heighten already existing anxiety and depression Psychosocial problems were handled by the psychiatrists, psychologists, and psychiatric social workers of the psychosocial division, working in cooperation with the physicians, nurses, and therapists of the staff

In scheduled interviews the patient was provided with the opportunity to discuss the rehabilitation program, his reaction to it, his feelings about his disability, and his plans for the future The social worker and vocational counselor, working together and in cooperation with the Division of Vocational Rehabilitation in the patient's home state, assisted in outlining plans for future social and vocational adjustment

In a small number of cases (four) psychosocial problems subjectively described by the patient as "homesickness" resulted in termination of the treatment before maximum benefits had been achieved Even with these patients, substantial gains were made during their period of training, although their average stay was only one-half as long as that of the total group

Occupational therapy was prescribed in most instances for prevocational purposes, the occupational therapist and vocational counselor working together in evaluating the vocational aptitude of each patient The recreational program, both inside and outside the hospital, provided social and recreational relaxation to balance the arduous work of physical rehabilitation

Complicating Problems—In the course of their rehabilitation, 20 of the 31 patients required medical or surgical procedures necessitating transfer from the rehabilitation institute to the University Hospital of the New York University-Bellevue Medical Center In some instances this additional medical or surgical care had to be carried out before definitive rehabilitation procedures could be instituted, in other cases the training program was interrupted and later resumed after hospital treatment

Nineteen patients required genitourinary study, transurethral resection, or other treatment for urinary problems complicating the spinal cord injury Laminectomy was carried out in three cases, in two for the first time and in one in which the patient had had previous laminectomy Cordotomy, cordectomy, alcohol injection, and alcohol block were performed for relief of pain or spasticity in four cases Decubitus ulcers were repaired by plastic surgery in six cases Orthopedic surgery was performed for relief of adductor muscle spasm or tight Achilles tendons in three cases

Length of Training Period—The average total stay for the entire group of 31 patients was 138 days, or about four and one-half months, with a range of 37 to 365 days Excluding the time spent in University Hospital for treatment of complications, the over-all average length of stay at the institute for rehabilitation training was 104 days

Among the 20 patients who required definitive treatment for complications, an average of 54 days was spent at University Hospital for the care of these complications In addition, these patients spent an average of 116 days in rehabilitation training at the institute, as compared with the average of 82 days for those 11 patients who did not require treatment of complications during the training period

Cost of Training Program

The expense of sending this group of patients to the Institute of Physical Medicine and Rehabilitation at the New York University-Bellevue Medical Center was assumed by the referring agency, the Division of Vocational Rehabilitation of the Georgia State Department of Education, and the cost, therefore, had been computed here from figures submitted by this agency Cost figures for hospital care include not only daily charges for bed and nursing care but also operating room fees, x-rays, laboratory, and other technical fees, and fees for consultants

While the average cost of care (table 1) of each patient in the total group was $3,518 86, the average total cost of those patients requiring treatment of complications was $4,467 28, as compared to a cost of $1,794 46 for those patients requiring only rehabilitation training

In totaling all expenses incurred in sending these 31 patients from their homes in Georgia to the institute in New York City, and in returning them to their own communities, there must be added the costs of transportation, of incidental expenses (such as for personal needs and travel attendant), and of necessary mechanical appliances The latter entailed, an additional expenditure of $18,850 28, making the over all total cost of $127,935 or an average total cost of $4,127 per patient For those patients whose conditions permitted immediate and uninterrupted physical rehabilitation (i e, the group of 11 patients who did not require hospitalization for treatment of complications), the average total cost per patient was $2,318, while for those requiring additional medical or surgical treatment the average total cost was $5,112

Follow up Study

Since the value of both physical and vocational rehabilitation must be measured in terms of sustained effectiveness, it was considered imperative in a study of this sort to supplement the preceding data with a follow-up evaluation of patients subsequent to their return home Accordingly, the collection of pertinent follow-up data was undertaken The follow-up for each patient was made after a minimum of one year after return home This information was obtained through use of a seven-page questionnaire Each patient was visited by a staff counselor of the Division of Vocational Rehabilitation of Georgia, and replies to the questionnaire were elicited from the patient through direct interview, these data were recorded by the counselor and then submitted to us

TABLE 1—*Cost of Hospital Rehabilitation Care*

Groups	Medical & Surgical Costs $	Physical Medicine & Rehabilitation Costs $	Total Medical and Surgical and Rehabilitation Costs $
Total			
Total 31 patients			109 084 [illegible]
Av per patient			3 518 86
Requiring treatment of complications			
Total 20 patients	42 917 11	46 428 46	89 345 [illegible]
Av per patient	2 145 85	2 321 47	4 467 2[illegible]
No complications			
Total 11 patients		19 739 15	19 739 15
Av per patient		1 794 46	1 794 46

The information obtained concerned many pertinent spheres the need for further medical and hospital care subsequent to the training period, the status of the bowel, bladder, and skin, progression or regression in ambulation, elevation, and self care status, the general physical condition, and the use of appliances and devices In the psychosocial and vocational areas, the data collected related to employment, income, recreation, and housing, in addition, it included the patient s personal evaluation of the rehabilitation program and his estimate of its consequences immediately and subsequently in his total adjustment to his disability

Physical Rehabilitation Status at Follow up

Ambulation—As noted in table 2, 22 of the 31 patients were incapable of ambulation at the time of admission, while 9 had varying degrees of skill in this After rehabilitation training, 27 of the group had improved in ambulation, while 4 remained nonambulatory At the time of follow-up, 3 of the 27 patients had regressed to wheelchair status One of these found a wheelchair existence more suited to his work and life, a second had developed severe pain necessitating surgery and had ceased to ambulate, and the third, a divorced housewife, found application of braces too difficult in her solitary existence Twenty-four of the patients have continued to be ambulatory

Elevation—Initially, 23 of the 31 patients were incapable of elevation, while the remaining 8 had poor, fair, or good skill in this activity Of the 27 patients who developed skill in ambulation during their rehabilitation training, all of these similarly developed elevation skills, the 4 patients who remained nonambulatory were also incapable of elevation activities At time of follow-up, six patients had regressed in ability to elevate, having found that a combination of ambulation and wheelchair activities or wheelchair activities alone were best suited to their abilities and needs in the home environment Twenty-one of the patients had maintained or improved their ability to elevate

Bed and Wheelchair Activities—As previously noted, all patients during their period of rehabilitation training showed a marked improvement in bed and wheelchair self-sufficiency At time of follow-up, these gains had been maintained in every instance, even when regression had occurred in other spheres For independence, most patients depended upon proficiency in wheelchair activities, using ambulation for exercise and for necessary moving about, "walking" as such usually was not employed when activities could otherwise be accomplished from the wheelchair

Use of Automobile for Travel—Of the 24 patients in the group who had been trained to get in and out of an automobile, 3 at follow-up were no longer able to do so, but 6 others who had not accomplished this at time of discharge had subsequently learned this skill Six patients had been taught during their rehabilitation to drive a car with hand controls, at time of follow-up these and three additional patients were so driving

Bowel and Bladder Training—Since the urinary tract is an area of acute concern in the health of the patient with spinal cord injury, evaluation of the urinary tract and bladder training were important aspects of the rehabilitation program Nineteen of the study group had presented urinary problems during the training period requiring either urologic evaluation or surgical intervention However, all patients during their rehabilitation were considered to have shown improvement in the handling of their bowel and bladder problem Despite their training, however, in scheduled control of urination, most of the male patients at discharge preferred to wear a rubber urinal as additional protection

At follow-up, 20 of the 31 patients were wearing rubber urinals during the day and 6 also at night Twenty-four patients professed to be following the routines for bowel and bladder control that they had been taught at the institute, and 21 of these judged this to be successful to a high degree While no patient considered bowel and bladder routines 100% successful, only one patient claimed that urinary incontinence was the cause of a poor vocational adjustment One-third of the group were having a monthly urine check as advised, while the remaining two-thirds either waited for urinary problems to arise or sought medical checkup at less frequent intervals

Incidence of Illness and Hospitalization Since Discharge from the Training Period

In the follow-up period since discharge to their homes, 18 of the 31 patients had required a total of 21 periods of further hospital care Six admissions had been necessitated by problems of skin breakdown, nine by urinary problems, two by fractures, one for spinal surgery, and three by miscellaneous medical conditions (anemia, pneumonia, hemorrhoids)

Although 18 patients had developed some problem of skin breakdown since discharge, only 6 of these had required hospital care, the remainder having been able to handle the problem at home under medical supervision

TABLE 2—*Physical Rehabilitation Status at Follow up*

Classification of Patient	On Admission	At Discharge	At Follow up (After Minimum of 1 Yr)
Bed bound	10	0	0
Wheelchair bound	12	4	7
Capable of ambulation	9	27	24
Capable of elevation	8	27	21
Vocational status			
Employed	7		13
In training	0		10

Other postdischarge problems common among the group were leg pain, muscle spasm, burning sensations, severe swelling, and contractures Muscle spasm and burning sensations were noted by more than one-half of the group Swelling, pain in the lower extremities, and contractures were complained of by some but were less common and tended to occur in combination with the other more frequent symptoms However, every patient continued to have some problem, major or minor

Social and Vocational Status at Follow up

Environment and Housing—All of the patients in the group had returned after their rehabilitation to the locality and to the home from which they had come Thirteen of the patients had adapted their homes to their new lives by having ramps constructed at the entrances Three other patients had had adequate toilet facilities installed for their own use, and several had had parallel bars set up or stair rails installed Adjustments in bed height to facilitate movement from bed to wheelchair were frequently required The semirural background common to the patient group in most instances provided convenient surroundings with easy access to the outdoors, as contrasted with the housing problems faced by the person with paraplegia living in an urban community

Marital Status.—Changes in marital status within the group were few. One patient whose wife had inflicted his injury by gunshot had obtained a divorce and was living with his children and his parents at the time of follow-up. One young married woman had been divorced from her husband and was living alone.

Recreation.—Thirty of the 31 patients, in reply to the question on favorite recreations, reported that they went to movies and to church, visited friends, and attended sport events and similar functions. Mobility within their environment was further evidenced in several instances by participation in fishing, hunting, and wheelchair pool games. Card games, radio and television, reading, playing of musical instruments, and hobbies such as leathercraft, model building, and collecting stamps were the more sedentary recreational pursuits common to the group. More than half of the group were participating in recreation outside as well as inside their homes. Only one patient claimed to have no recreational outlet, and only one patient indicated a need for greater recreational outlets.

Vocational and Economic Status.—At follow-up 13 of the 31 patients (42%) had been gainfully employed for from 9 to 12 months. Ten others (32%) were in training for suitable work under the auspices of the Department of Vocational Rehabilitation, while eight (26%) remained dependent. Of the five Negro patients in the study group, one was employed, three were in training, and one was dependent.

Of the 13 employed patients, 12 were male and one was female; the average age was 32. The female patient was single, and, of the males, six were married, one was separated, and five were single. The educational level of this employed group was close to the ninth grade average of the total study group.

Of these 13 employed patients, 5 had returned to their former jobs. One patient who had been a mill laborer had learned watch repairing; an automobile mechanic had become a skilled jeweler and watch repairman. A girl 20 years of age, formerly a clerk, had become a receptionist and medical secretary. A laborer, salesman, and jack-of-all-trades had become a bookkeeper, while a shoe salesman had learned radio and television repair. A skilled tile worker had been helped to start a grocery store and lunchroom. Another patient, with a work history of poorly paid odd jobs, was earning a steady income in shoe repairing. The 13th patient, a farmer, had obtained a part-time job as county tax commissioner, in addition to his work as a poultry farmer. The average weekly income of these employed members of the group was $40, an amount commensurate with the estimated average wage for the total group prior to injury and onset of disability.

Among the 10 patients undergoing vocational training at time of follow-up, the average age was 24. Nine of these patients were males, of whom eight were single and one married. One patient was a single female. Included in this group were the younger patients who at the onset of their disabilities had had no work experience and who, therefore, required suitable specialized training. Areas of training were in shoe repair work, tailoring and altering, reweaving, watch repair, and, in one instance, in reading law preparatory to the taking of bar examinations.

Of the seven patients who had been referred for rehabilitation training within the first year after their injury, six were already at work and the seventh was in training at the time of follow-up. Of the group of five referred during the second year after injury, two were employed, two were in training, and one was dependent. In the two-to-five-year group, none was employed at time of follow-up, four were in training, and four were dependent. Among the remaining 10 patients who had been disabled for more than five years prior to referral for rehabilitation, 5 of these were gainfully employed, 2 others were in training, and 3 remained dependent.

In the remaining group of eight patients who at follow-up were found to be economically dependent, five were male and three were female and the average age was 29. Of the women, one remained separated from her husband, another was single, and the third had obtained a divorce after her return to her home. Three of the males were married, and two were single. Among the five males, one patient, the father of seven children with a disability of long standing, felt himself unable to work because of pain and had not returned to his old job even though this was open to him. A second male patient, handicapped by limited intellectual capacity, low educational attainment, a paucity of training and job placement opportunities in his home town, as well as by persistent pain and swelling, had given up efforts to train as a garage mechanic. A third, limited vocationally by his illiteracy, shared optimism with his vocational counselor that a job would eventually open up for him in local industry. Another patient, embittered and discouraged by persistent physical problems, had given up training in shoe repairing and had become financially dependent on welfare funds. The fifth male in the unemployed group was a 20-year-old boy, who considered himself "totally disabled." He had left the institute against medical advice, before completion of training, although it had been felt that with physical, psychological, and vocational therapy he could have achieved a measure of independence. Among the remaining three female patients unemployed at time of follow-up, all were patients who had presented problems of social and emotional adjustment during their training periods. Two of the three had sustained their injuries in conflict with suitors and the third, injured in a car accident in which her husband had been driving, had had marital difficulties and had subsequently been divorced.

Psychological Adjustment.—In their rating of personal adjustment to their disability (poor, average, good, or very good), only two patients considered their adjustment to be "poor." Both of these men, one a youth and the other a 40-year-old married man, were in the dependent group. Six patients considered their adjustment "average"; one of these was an employed male, two (one male and one female) were in training, and the remaining three were dependent. Ten patients claimed a "good" adjustment; of these four were employed males, four were males in training, and two (a male and a female) were dependent, although both verbally desired employment Thirteen patients felt that they had made a "very good" adjustment to their disabilities, eight of these were employed, four were in training, and one single woman was dependent

Comment

The significance of the problem of spinal cord injury and paralysis has largely been identified with war injuries, because of publicity relating to advances in rehabilitation techniques developed during World War II for patients with these disabilities It is not generally appreciated that while World War II produced 2,500 such casualties among our troops, 15,000 such disabilities occurred among our civilian population in the same period of time[2] Since the close of the war, attention has become focused on this disability problem among civilians and specialized centers for applying rehabilitation techniques have grown considerably in number and in quality

Although it has been repeatedly demonstrated that the cost of rehabilitation treatment is economically a sound investment in terms of restored personal and financial independence, few studies have included adequate follow-up statistics to corroborate the immediate favorable results of such treatment This study, therefore, was undertaken to evaluate both the immediate treatment results and the subsequent course of the patient after his discharge to the community

In the evaluation of rehabilitation results among any group of severely disabled patients, it is essential that patients be unselected and that results of the treatment program be projected to include an adequate period of follow-up after discharge In this study, both for uniformity in the collection of data and for uniformity in services provided patients, it was considered desirable that the patients under study be clients of a single sponsoring agency Accordingly, the Department of Vocational Rehabilitation of Georgia was selected because of the relatively high number of referrals from this source and because of their generous offer to assist in the collection of follow-up data The 31 patients in this study, therefore, comprise the total group of patients with spinal cord injury referred by the Georgia Department of Vocational Rehabilitation in the period of December, 1950, to March, 1953, an arbitrary period permitting a minimum follow-up period of one year for all cases

The core of the physical rehabilitation objective for the patient with spinal cord injury is independence This includes not only independence in personal self-care but also independence in mobility with or without necessary bracing, crutch wheelchair, or other appliances It is significant that all of the 31 patients, including the 10 who had been bed-bound, could be trained in some measure of such independence and that 27 attained some proficiency in the more advanced techniques of ambulation and elevation That these were functional accomplishments and not mere feats was apparent in the follow-up statistics, which showed that in general these gains in self-care and mobility had been maintained

Although the great majority (27 of the 31) of the patients mastered techniques of ambulation and elevation in the course of their rehabilitation, the follow-up study showed that most patients after their discharge depended upon their wheelchairs for self-sufficiency and independence and utilized the more difficult functions of erect ambulation and elevation in braces and crutches only for those necessary activities that could not be accomplished in a wheelchair This is a consideration of importance, since perfection of ambulation and elevation in braces is time-consuming and expensive in terms of protracted training, whereas wheelchair self-sufficiency training is considerably less so This fact has recently provoked negative opinions as to the practicality of training patients with spinal cord injuries in ambulation and elevation techniques[3] However, proponents of such training point out the marked geographical constriction imposed upon patients dependent solely upon wheelchair mobility We strongly endorse training in ambulation and elevation techniques for most paraplegic patients, so that these techniques may be used in those functional activities unattainable from a wheelchair It is felt that the present follow-up study accentuates the wisdom of this, for, while most of the patients studied relied largely upon the wheelchair for independence, 24 of 27 had maintained their ambulation proficiency and 21 of 27 their ability to maneuver stairs, curbs, and other elevations thus retaining broad physical independence

The predisposition of patients with spinal cord injuries to complications is a frequent deterrent to rehabilitation and often a grave danger to life In previous years, before the discovery of antibiotics and chemotherapies and before the perfection of plastic surgical techniques and other modern medical specialties, these complications almost invariably proved fatal[4] While these complications of spinal cord injury are now mostly amenable to treatment, the incidence of them remains high In this study, because of the small number of patients, no definite relationship could be established between the incidence of complications and the lapse of time between injury and start of the rehabilitation treatment program However, it is generally agreed that the deconditioning of bed rest predisposes to many of the complications incident to paralysis and that the earlier the start of a physical rehabilitation program the less the danger of these Twenty of the 31 patients in this study presented urologic, neurological, plastic surgical, orthopedic, or other complicating problems requiring definite medical or surgical care The significance of these complications is reflected in both the prolonged length of rehabilitation treatment time and in the increased cost The patient developing a complication required an average of 54 days for the treatment of this complication, and in addition his physical rehabilitation program averaged 30 days longer than that of the patient developing no complications While the total cost for the uncomplicated patient requiring only rehabilitation training was $1,794 46, that for the patient developing complications requiring medical or surgical care was

$4,467 28 The presence of complications, therefore, more than doubled the total cost of rehabilitation care

As evidenced in the follow-up study, the threat of complications continued after the termination of the rehabilitation program Aside from complications necessitating definitive hospitalization, all patients carried with them a residuum of physical complaints of major or minor significance For the maintenance of gains attained in a rehabilitation treatment program, it would seem essential that the patient with spinal cord injury be constantly regarded in the light of complication threats and that he be followed carefully and continuously under medical supervision

In the study of patients such as these referred for rehabilitation by a vocational rehabilitation agency, the success of a treatment program must be measured not only in terms of physical independence but also in terms of the patient's ability to return to gainful employment In this group, after a minimum of one year, 42% had returned to gainful employment and an additional 32% at the time of this report were actively engaged in vocational training programs preliminary to gainful employment, 26% were unemployed and economically dependent This is in marked contrast to the 22% who were employed and the 78% who were unemployed and economically dependent prior to initiation of rehabilitation It is of significance, also, that the average income of those employed at time of follow-up approximated the estimated average wage of $40 per week among the group prior to onset of disability Of special note in the group who were employed at the time of follow-up were five male patients who had been disabled and homebound for more than five years each prior to undertaking their rehabilitation program

While there were a greater number of patients among the employed group who at follow-up felt that their psychological adjustment was very good, this concept of adjustment on the part of the patient could not be directly correlated with vocational and economic attainment status Similarly, favorable opinions of the rehabilitation program from the patients could not be correlated consistently with improvement in vocational status or even with improvement in general physical condition

In the evaluation of results of a rehabilitation program such as the one for these 31 seriously handicapped patients, one must keep in mind the many intangibles that have been merely implied in this report The gains in dignity and psychological health that go with every increase in adjustment have contributed to the enrichment of the patients lives as well as the lives of the people in their immediate environment Furthermore, the gross measure of adjustment on every level can be assessed only in terms of each patient's original potential, the ordinary cultural and economic levels of his community, and the severity of his original disability Finally, rehabilitation is only partly completed when a patient finishes his treatment and training in a hospital and steps back into the world with his new-found skills of independence His success or failure in making this transition from the protected to the unprotected environment to a great measure hangs in balance, dependent upon the energetic support, guidance, and resourcefulness of his vocational counselor The high degree of success among the patients reported here, therefore, reflects not only the merits of modern physical rehabilitation techniques but also the great effectiveness of the Department of Vocational Rehabilitation of Georgia

Finally, among these patients, the record of achievement, even in the face of severe and persistent physical odds, suggests that there is a quality in the rehabilitation program that transcends any of its parts in its value to the patient Further study of the content and meaning of the interaction between the patient and the physician, therapist, nurse, counselor, social worker, psychologist, and even between one patient and another might yield valuable information toward a fuller understanding of the dynamics of the rehabilitation process as an aid not only in salvaging lives but in helping physically handicapped persons to live their lives with greater dignity and deeper satisfaction

Summary

Thirty-one patients with traumatic transverse myelopathy were studied to evaluate both the immediate and the subsequent results of an intensive and total rehabilitation program The follow-up in all instances was after a minimum period of one year

Of the 31 patients, 27 were trained, in the course of their rehabilitation, in self-sufficiency in ambulation and elevation activities At the time of follow-up, 24 patients continued to be proficient in ambulation and 21 in elevation activities Medical and surgical complications of myelopathy presented frequent intercurrent problems both during and after the rehabilitation process Further, the occurrence of such complications considerably increased the time necessary for rehabilitation and more than doubled the cost of such a treatment program At the time of follow-up, 42% of the patients were employed full time in jobs and an additional 32% were in vocational training programs preparatory to employment This was in marked contrast to the 78% who were unemployed and economically dependent at the initiation of rehabilitation training

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Mr A P Jarrell and the Department of Vocational Rehabilitation of the State of Georgia gave invaluable assistance in this study

Copies of the seven-page follow-up questionnaire are available from the authors on request

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4 Footnotes 1 and 2

THE SEXUAL DEVIANT (SEXUAL PSYCHOPATH)—CAUSES, TREATMENT, AND PREVENTION

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• *Hypotheses as to the etiological factors in certain stereotypes of sexual behavior are applied to three case histories In one, a case of incest involving father and daughter, there was frigidity in the mother and a distorted background in the father, the complaints ultimately came from the mother In the second, a case of compulsive grasping of women's breasts, the patient's family was found to have been extraordinarily inconsistent and confused as to physical intimacies In the third, incorrigible exhibitionism necessitated institutional care of a man whose foster parents had been extremely inconsistent as to what was forbidden and what encouraged The mere elucidation of etiological factors in such cases has not been found sufficient to effect a cure Therapy has proved to be a formidable undertaking it was futile in patients who showed no compelling motivation for treatment The authors believe that hostile seduction by parental figures underlies all the sexual deviations A first approach to prevention would therefore consist of education of the parents, and the incidence of sexual deviations can be reduced by relatively simple efforts on the part of pediatricians and family physicians*

The sexual deviant poses a problem of tragedy to himself, distress to his family, and concern to society at large Although sexual deviations are emotional disorders of individuals that require correction by a psychiatrist, the prevention of such disorders is largely at the command of the family physician and the pediatrician The outlook for eradication or even significant curtailment of the incidence of sexual deviation is as gloomy to the psychiatrist operating unaided as is the prospect of treating individual patients with smallpox in the absence of prophylactic vaccination to a family physician Actually, the family physician and the pediatrician, working in concert, can "vaccinate' large segments of the population against the "virus' of sexual deviation

At the outset, it is essential that there be an end to the use of terms of hostile connotation toward the patient and to visions of the deviant as inhuman, predatory, incurable, and inevitably destined to pursue his present course The older and too common terms of "psychopath" or "sexual psychopath" or "psychopathic personality with pathological sexuality" should give way to the more objective designations of "sexual deviant' or "sexual deviation,' as recommended in Standard Nomenclature of Diseases and Operations Under the term "sexual deviation" we include (1) any *hostile, destructive sexual behavior manifested toward* others (sexual sadism) or accepted from others (sexual masochism) of the opposite or of the same sex, and (2) all such unacceptable forms of overt sexual behavior as exhibitionism, voyeurism, fetishism, transvestism, homosexuality, and bestiality

Considerable variability characterizes the degree of hostility and destructiveness toward others or toward the self Furthermore, attributes incorporated into the total personality of the sexual deviant vary tremendously from patient to patient Some have a well-developed conscience in all other areas of social behavior, while others may possess multiple conscience defects and display such additional antisocial activity as lying, stealing, fire-setting, and vandalism No consistent personality pattern is exhibited The concept of a uniform constitutional inability to establish warm, meaningful human relationships or to learn by experience is by no means universally applicable Such personality defects may certainly accompany hostile sexual behavior or perversion, but they are not at all specific for this group of patients Such traits often occur in many neuroses and psychoses and in instances of delinquency

Development of Current Concepts

Fortunately, in recent years, a better understanding of such sexually deviant behavior as the foregoing has removed the stultifying shackles of old theories of genesis, based upon constitutional defects, which promised little for therapy or prevention The early work of Freud[1] and Ferenczi[2] emphasized abnormal but modifiable psychological development in contrast to inborn and intractable drives Subsequently, much serious research has been pursued by many physicians to achieve a better understanding of the pathogenesis of these conditions Only an increased comprehension of the causation of the disorders can provide a guide to intelligent treatment, help for the patient, and the protection of society More important, an appreciation of causal factors fosters alertness to incipient manifestations of trouble ahead and suggests measures for prevention, which must be the primary concern of the psychiatrist, the pediatrician, and the family physician

The research on causes of "individual delinquency" carried out during the past 15 years by Szurek and one of us[3] suggested a new approach to the problem of the sexual deviant By means of intensive treatment of parents of the non-gang-member delinquent child, we demonstrated that repeated stealing, arson, and vandalism are stimulated by unconscious or rarely conscious antisocial impulses in the parents The parents derive unconscious but real gratification from the

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enactment by the child or adolescent of impulses socially forbidden the parent In very large numbers of the cases studied of serious conscience deficiencies in children of good families,' parental fostering of the antisocial behavior was discovered in every instance in which an adequate search was possible or was permitted

Parallels between delinquencies related to property or truth and delinquencies pertaining to sex were displayed in the early investigations of Szurek and one of us [3b] Extensions of findings linking parental fostering and sexual deviations were presented by Kolb and one of us [4] and were still further elaborated by Litin and co-workers [5]

Parental Seduction

To understand the pathogenesis of antisocial pathological sexuality, the physician must face a disquieting but demonstrable fact examples of all degrees of parental seduction of the child occur more commonly than it is comfortable to contemplate, regardless of the socioeconomic status of the family The seduction may be as subtle as a caress or as blatant as actual incest Seduction in any degree is the pathological sensual tempting and sexual stimulation of the developing child—the future sexual deviant

Rather generally, people, including physicians, reared as they are in our culture of healthy taboos, are likely to react initially with anger and repulsion to accounts of seduction, especially the more obvious forms Increased understanding of the backgrounds of these patients and of their parents tempers the natural emotional response, which gives way to sympathetic but grave medical concern

The simplest unwitting seductions occurring in a family often reflect confused parental efforts to be modern and hide nothing from the child The conventional restraints of common modesty respected outside the home are ignored when the children are concerned The parents parade about the house in all degrees of nudity, sleep with the child, bathe with the child, and respect no bathroom privacy The child's normal but tentative efforts at privacy are disregarded The behavior may extend to such more frankly seductive practices as playing with the child's genitals or permitting an intimate physical examination of the parent Initial reluctance by the puzzled child gives way to compliance in the climate of permissiveness, and the parent and child stimulate each other

In such families, no consistent attitude toward conversation about sex is displayed A vague sense of guilt may rigidly proscribe all mention of sex, or "freedom from prudery" may foster excessive discussion of sex, providing unconscious gratifications to parent and child, with supercharged, unhealthy but exciting tension

The pathological aspects lie less in the overt behavior of the parent than in the age of the child involved In infancy, nudity, bathing, inspection, fondling, sleeping together, and virtual absence of privacy are appropriate and even necessary The entire coloring of these phenomena changes as the infant becomes a young child Persistence of such distortions of kindly parental affection into adolescence is frankly pathological, destructive to the child, and dangerous to the parent and to society

Under the guise of "motherly" or "fatherly" affection, boys and girls may be bathed by parents, often of the opposite sex, until adolescence Children sense at bathing whether a mother's close inspection of the genitals is an honest, brief, physical necessity or an anxious, seductive maneuver The bathroom may be as devoid of privacy as a railroad station Habitual undressing, with startling abandon, occurs before the eyes of children Sleeping with children of the opposite sex is prolonged into the teen-age period The mother may still continue to lie with the son, despite awareness that erections occur Study reveals that such mothers achieve from these experiences a gratification admixed with hostility and anxiety

Stimulated by this parental behavior, the child finds no outlet for his aroused sensual impulses Eventually, mounting frustration and anger force him to follow one of two courses One is regression to the relative safety of more infantile attitudes and behavior patterns Such a retreat quiets the immediate conflict The other is physical aggression toward women Unfortunately, neither course resolves the rage nor dissipates the overstimulated unconscious sexual drives

Transgressions beyond the legitimate parental embrace of affection and into the sphere of frank bodily petting and intimate palpations of adolescent children by fathers or mothers are much less uncommon than is suspected by the average person Often these seductive maneuvers of varying degrees of intensity by one parent are condoned by the other parent Our patients have included members of families of all economic and social levels who have engaged in frank incest or its close approximation with the sanction of the second parent

It is incumbent upon the scientific investigator to distinguish clearly, especially in his own mind, between observation and speculation, between objective phenomena and subjective hypothesis, and between an event recorded and a theory propounded The observations set forth in this section on parental seduction are neither speculation, hypothesis, nor theory They are events that occur, not uncommonly, and they are events to be observed and recorded, if the observer possesses an open mind and the knowledge, persistence, patience, skill, and experience to uncover these stubbornly elusive facts

Parental Fostering by Equivocation

Antisocial behavior of almost any kind may be fostered by vacillation, ambiguity, equivocation, or "double talk" on the part of parents, such as the following examples show 'Fire-setting is prohibited, but, if you must light a fire, let us burn papers in the sink " "You must not steal, but, if you do take money, take it from my purse instead of the neighbors' " "Do not lie," but a half-hour later the parent will say, "Perhaps we should tell teacher you were sick that day we went riding"

A spurious admonition to right behavior, prompted by a fragile parental conscience, is rendered futile by the permissive, "but if you must "[6] Such ambiguities occurring in individual delinquency have been reported extensively elsewhere

These techniques are also employed in the fostering of behavior oriented toward sexual deviations A request to "sonny" to wear his bathrobe becomes ineffective when coupled with mother's 'cute" reference to the charms of the boy's nudity Orders to 'stay out of the bathroom until dad has finished" are more appropriate in a family than open doors

A transvestite boy of 14 years of age, at the age of 5 had been found smelling assorted laundry items belonging to his mother Instead of an unequivocal prohibition, the mother urged only that the boy substitute her clean underclothing

Children sense the anxious, vacillating permission and seduction in such parental double talk Another manifestation of double talk is the parentally expressed concern for imagined future misdeeds by the child—the imagination deriving from the parent's mind but taking root in that of the child There may be dire warnings of future sexual misconduct quite foreign to the child's conscious inclinations A consciously guileless adolescent who is subjected to suspicious, suggestive, unfriendly quizzing angrily apprehends the destructive lack of faith on the part of the parent The child senses that he is expected to misbehave sexually The parents' fantasy that their small child will probably get into sexual trouble during adolescence provides a compelling guide Unconsciously, the parents gradually maneuver this child into adolescent sexual acting-out

Concept of Pathogenesis

Our investigations testify to the origin of sexual deviations in pathological permissions or even coercions of the child by adults within the family Direct hostile sexual misbehavior usually derives from conscious overt parental fostering, while perverse sexual aberrations result from unconscious or, more rarely conscious stimulation by a parent In either case, it is clear that parents who so distort their child's psychosexual development are emotionally very confused badly maladjusted, and definitely sick, belying every outward appearance of their stability in the community All such parents reveal an unsatisfactory marital sexual relationship

Establishment of a cause-effect relationship demands that parental pathological permission or coercion (a causal factor) be always present when the child displays deviant sexual behavior (the effect) Also, it is required that such parental sexual sanctions always be absent in a control series in which children do not display the sexual deviations and perversions under consideration These cause-effect relationships have always emerged from the intensive studies by Mayo Clinic research workers in parents and children with sexual abnormalities and in the control group displaying many nonsexual emotional disorders So constant are these findings that perhaps we may be warranted in the tentative judgment that alternate concepts of the pathogenesis of sexual deviations held by other competent psychiatrists are derived either from unfamiliarity with the concept described herein or from failure to search sufficiently, diligently, and intensively for the casual relationships described

Direct Hostile Sexual Acting-out —When the parents consciously foster and sanction deviant sexual behavior in children and adolescents, what happens is plain enough Adolescents who are allowed to know that their parents indulge in illicit sexual affairs will angrily incorporate the defective parental standards and be guided accordingly, essentially in imitation Family illegitimacies that are condoned and brought to the children's attention provide sanctions for illegitimacies by the children Similarly, children's hearing and observing hostile sexual behavior between parents lead the children to identify with this parental fusion of viciousness and sexuality and later to behave in like manner themselves

The mother may continue to sleep with an adolescent boy, despite awareness that he is experiencing erections The mother may permit or encourage the fondling of her breasts by boys into the age of adolescence Fathers may sleep with daughters and engage in all degrees of caressing and genital stimulation Actual incest, particularly of the father-daughter variety, occurs far more commonly than we formerly knew Such experiences provide the child with a sexual excitement, coupled with a baffling frustration that arouses an anger that is intense but often repressed for a time This is the soil from which stem all degrees of promiscuity in girls The counterpart, maternal seduction of the son, is the environmental heritage for sadistic, direct sexual acting-out by the boy, who will soon become the adolescent and later the man When the parent compounds the injury by projecting all blame upon the child, as often occurs, the sense of guilt is overwhelming, the conflicting evidence of the senses is incomprehensible, and a flight into frank psychosis may be the alternative to sexual acting-out

CASE 1 —We recently studied an 11-year-old girl of a middle-class family whose mother had known for years that serious genital seduction was being carried out by the father The mother, frigid and very disturbed, for a time had been glad to be relieved of sexual marital obligations, but eventually her mobilized anger and jealousy demanded that something be done to correct the family situation The father, himself the product of a distorted background, openly confessed his behavior with the daughter and agreed to a program of long intensive treatment for the child and both parents Without long inpatient treatment this child faced not only probable pregnancy as a result of her father's actions but the virtual certainty of promiscuity A complication in this case, magnifying the therapeutic difficulty, was the almost complete absence of shame or guilt on the part of the child because of the apparent approval of the mother

Whatever may be the obvious superficial stimuli to seductive behavior provided by parents, there is also a hidden, usually unconscious, hostility toward the child and a compelling motivation concealed even to the parent, to destroy the developing personality It is essential for the physician to appreciate that these parents behave in this manner because of emotional traumas administered by their own parents Such parents are in as pressing need of treatment as are the children Too commonly, the uninitiated physician becomes so angry at the parents that he may encounter difficulty in treating them Awareness and understanding of the experiences suffered by these parents in their past enable the psychiatrist to treat the parents objectively and sympathetically

Case 2—Another instance of direct sexual acting-out was that exhibited by a 19 year old man arrested for grasping women s breasts Here, again conscious fostering predominated in the confused family The father of the patient frankly fondled the mother s breasts in the presence of the children Noisy, sadistic sexual altercations between the parents were common For three years the young boy knew of his mother s sexual escapades with a lover in the family living room while the father was at work at night The son was permitted to touch his mother's breasts until he was 12 years of age

At that age, to the utter incomprehension of the boy and to his further undoing, he was shouldered with blame The touching of the mother s breasts must stop ' Told that he was a *sex maniac,* he was warned that 'boys like you go around attacking women when you grow up ' The mother told us of her *apprehensions from when he was 7 years of age that the boy* was oversexed and would be one of those sex fiends The unfolding story, freely but tearfully recounted leaves almost nothing to the imagination in the sequence of fostering by overt example permissive sanctioning of imitative behavior, and the devastating picture of the boy portrayed by the mother s hostile anticipation

This was no other-side-of-the-tracks narration it was no family of dubious reputation and whispered rumor This family was an asset to the community, a strength in the church and an example of industry, stability, and friendliness

Perverse Sexual Aberrations—*In contrast to the in*stances of direct hostile sexual acting-out, stemming from conscious parental behavior, the perversions, such as exhibitionism, voyeurism, and transvestism, are traceable more often to unconscious parental sources These unconscious aberrant sexual impulses of the parents, distorting the instinctual sexual development of the child, may easily defy detection The origin and nature of the forces operating in the perversions differ significantly from the factors responsible for direct sexual acting-out

In the adolescent—later the adult—searching taking of the history always reveals the following contributing factors First, the child develops in a climate of confusion and frustration resulting from a poorly integrated marriage of parents who never even approximate a mature or gratifying marital relationship

Second, one parent unduly stimulates the child, usually unconsciously, but occasionally consciously, by behavior of a sexual coloration, such as kisses or embraces just a measure too lingering or too intimate, lying on the same bed with the child displays of nudity, and performance of bathroom functions quite unhampered by the amenities of privacy Usually, the second parent condones the seductive stimulations

Third, and critically different from the etiological sequence in direct, hostile sexual acting-out, the stimulation, however sexually charged, is aborted short of genital or even breast contact between parent and child Consequently, the relationship is particularly heavily burdened with genital frustration

Fourth, the parent deftly deflects the child toward unusual sexual behavior of a distinctly immature nature, carrying no uncomfortable threat to the parent with a limited commitment to seduction Unconscious capital is made of such normal physical and sensual childhood expressions as peeping, which becomes voyeurism, "showing off," which becomes exhibitionism and bisexual play, which becomes transvestism or homosexuality

At an early age (about 2½ or 3 years), when a little *child is emotionally rather bisexual,* it is very easy to foster a boy's turning to girl's play and dress Litin, Giffin, and one of us (A M J)[5] have described in detail a case in which a mother, with the father condoning it, instilled transvestism in her 5-year old son This masculine woman had been seduced by her father and subconsciously hated men, including her son She was excessively sexually stimulating to her little boy, short of genital contacts, and maneuvered him into completely feminine behavior The child was not brought for psychiatric treatment by the *parents, to whom the behavior was entirely acceptable,* but he was referred by the pediatrician, who detected the unusual behavior in the course of an examination for a hearing difficulty We have encountered numerous instances of the early stages of a mother's guiding a boy toward fetishism

If a mother unduly shows off her body to her male child and inadvertently but obviously reveals enjoyment of the child s displaying his own body, the normal but limited exhibitionism of a little child may gradually increase to an abnormal extent Thus, overly stimulated by a seductive mother who frustrates any genital contact, the child observes that his parents permit and encourage him in exhibitionistic behavior The mother is stimulated by this increasing display Since his actions are at least partially condoned by and are acceptable to the parents, the child carries out the acts with very little guilt or shame

Yet, it has become abundantly clear to us that the child harbors a great anger, arising from the contradiction of an initial sexual stimulation culminating only in a subsequent genital taboo All exhibitionists we have observed are consciously or unconsciously very angry at women We have seen many instances of this same parental background in exhibitionistic adolescents, and, in every instance in which we have had the opportunity to study the parents as intensively as the child, we observed the same interplay of parent child forces in operation In all male sexual deviants involved with perversion, we always seek and invariably find (1) the sources of hostility toward a woman and (2) the stimuli for the specific sexual behavior evolved *The following typical case* vividly depicts the tragic train of events responsible for an adult male s exhibitionism

Case 3—A 36-year-old married man was committed to a state hospital for the mentally ill because he had repeatedly exhibited his genitals to women in his home community Warned by the police in his home town he was subsequently apprehended in a neighboring town for the same *offense* On the day he was admitted to the hospital, a 45 minute interview conducted by an experienced psychiatrist elicited the following revealing information from the patient

One and a half years earlier, this patient first had the urge to exhibit his *genitals to women and had since carried* out the impulse at irregular intervals He said that, preceding the ex hibition, he felt weak all over and was aware that the impending act was wrong, but he was irresistibly driven to expose himself When he exposed his genitals he placed his hand on his penis and experienced both an erection and orgasm He vigorously denied fantasies of intercourse or of aggressive sexual activity at the time of the exposure Devices, such as saying the rosary when the impulse toward exhibitionism gripped him or having more frequent intercourse with his wife were of no avail Authoritarian warnings from the local police were ineffective The patient was quite aware that his uncontrollable impulse was destroying his life

At birth this patient had been abandoned by his parents For the first nine years he was reared in a state orphanage During this time he rarely had social contacts with the girls at the orphanage, since rather strict segregation of the sexes was enforced No cruelty or seduction was directed toward him by any of the employees at the orphanage

At the age of nine years the patient was adopted by a farming couple who had two children of their own, a boy and a girl In this home the patient was permitted no manifestation of normal anger under threat that he would be returned to the orphanage Verbal references to sex were strictly taboo, the patient never dared request information about sex Characteristically, however, certain forms of sexually oriented behavior were not only exempt from taboo but even fostered and encouraged The mother bathed the patient's back from the time he was nine years old until he was 30 years old In those years during this bathing experience, the patient often experienced erections which he knew his foster mother observed

When the patient was 30 years old, the foster mother, by that time a widow, became a cardiac invalid She demanded that the patient take over her household duties as well as the total care of herself Since there were personal needs to be met at night, the patient slept in the same room with the foster mother The foster mother would permit none but the patient to bathe her (to the waist only) and to administer to sores upon her body During this entire time the patient dressed and undressed in front of the foster mother quite aware of a degree of accompanying sexual excitement Obvious erections were recurrently observed by the foster mother, who neither protested nor averted her gaze At this point in the interview the patient said, with some feeling, She should have told me the first time to dress somewhere else'

Recollection of other episodes about which she should have told me it was wrong included an incident of peeping at an outdoor toilet that was being used by girls When the patient was detected in this act the foster mother merely exclaimed, Oh, you boys!

These years of inordinate seductive stimulation, coupled with genital sexual frustration aroused in the patient a vast anger a rage of enormous intensity The emotional traumas delivered by the irregularities in the sexual sphere were multiplied by an admixed financial niggardliness of no mean proportions on the part of the foster parents From 9 to 27 years of age the patient worked on the farm with no compensation other than his room and board When his foster father died, the patient, then 27 years old, became responsible for all the farm work including care of the stock He then began to receive a mere $100 monthly in addition to his room and board The final insult came when after the patient had spent three years in caring for the foster mother under the circumstances described she died, leaving a will completely excluding the patient from benefits Instead the foster mother bequeathed her farm and all other possessions to her natural son, who had never given her help and who had always derogated and criticized the patient. Consciously seething with rage at this monstrous injustice, the patient feared he was having a nervous breakdown'

Let it not be thought that the foster parents of this patient were queer recluses who saved old newspapers on a run down farm They were successful farmers, respected members of the community, and altogether nice people in the eyes of their friends and acquaintances

Ultimately, the patient left his former 'home and secured work that would provide appropriate pay He saved money, fell in love, and married a young woman In the marriage the patient encountered considerable difficulty from impotence, a scarcely surprising sequel to the antecedent psychosexual experiences The young couple bought a farm and worked hard together to retire financial obligations

When the wife became pregnant, the exhibitionistic symptoms began to assail the patient At this time he was utterly unconscious of anger or hostility toward his wife On the contrary, he insisted there had never been a difference of opinion between the two of them

Etiological Determinants

This narration requires no technical or professional embellishment for definition of the nature of some of the factors responsible for the sexual deviation The seductive stimulations, the appalling frustration, the parental fostering of exhibitionism, and the evolution of rage and hate are abundantly clear Less clear to the uninitiated is the reason for the eruption of these forces into the overt practice of exhibitionism just at the time when the life circumstances and outlook of this patient 'appeared" most favorable At that time, for the first time emancipated, he could live independently purchase his own farm, and make a home Consciously, he was quite happily married A baby was coming, and a good family was in prospect What, then, was profoundly wrong?

Recall, in the life of this patient, the almost total absence of any compulsion to assume real responsibilities, until the death of the foster mother The sheltered life of the patient while he was in the orphanage was followed by a protected—although otherwise harrowing—existence on the farm As long as he remained passive and dependent, his basic material needs were met The fact that he stayed on the farm in a setting of such submission identifies his basically passive-dependent character Commonly, such a dependent person, seeking a mate, may search out a mother-figure' upon whom he can continue to be dependent This is the pattern of life that is familiar and comfortable It is sufficient as long as it lasts The anticipated arrival of the baby, however, posed a subconscious but definite threat to the patient's familiar, comfortable, sufficient existence A rival newcomer might displace him from his position of dependency Twice before he had been abandoned—at birth by his true mother and again by the death of his foster mother, who left him absolutely nothing from her estate

As the pregnancy progressed and the imminent appearance of the rival approached the patient's anxiety and resentment mounted The subconscious fear of abandonment was coupled with a mobilizing of the rage born of his previous desertions and frustrations Hostility toward women, usually unconscious, is an invariable ingredient of male exhibitionism In its origins, the patient's rage was fused with sexual emotions, conditioned by the repeated seduction and frustration in his life with the foster mother Exhibitionism was the specific accepted channel for the expression of the hostile-sexual urges that he had learned so very well from her through 24 long years

We may well inquire how and why was it possible to obtain the illuminating, painful history of this patient in one relatively brief interview Such an unfolding of the past, in our experience, by adult patients

CLINICAL NOTES

TRICHINOSIS INVOLVING THE CENTRAL NERVOUS SYSTEM

TREATMENT WITH CORTICOTROPIN (ACTH) AND CORTISONE

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Trichinosis is the most common parasitic infection in many parts of the United States About 18% of the adult population is infected, according to the general incidence at autopsy [1] This implies that the disease may very often be asymptomatic or that the clinical features of trichinosis are infrequently diagnosed It is thought that the manifestations vary with the number of parasites present as well as with an unknown susceptibility of the host The disease is generally considered self-limiting, although the mortality is said to be 6% [2]

The most heavily infected areas are the diaphragm, intercostal muscles, and the muscles of the tongue, eyes, larynx, and neck While any tissue of the body can probably be involved, the most serious complications are those involving the myocardium and central nervous system The fact that the central nervous system could also be involved by the parasite has been known since 1906, when Frothingham [3] demonstrated the larvae in the brain How frequently the central nervous system is invaded, and the degree of involvement, are difficult to estimate because of the protean manifestations that may be produced by the larvae Evers [4] believes that the larvae are present in the spinal fluid in most cases of trichinosis but that their presence cannot be correlated with the signs and symptoms of central nervous system involvement

When the central nervous system is clinically involved, such involvement appears to be of two types In the first there are nonspecific nervous system manifestations, including headaches, neck pain and stiffness, apathy, confusion, and diminished to absent deep tendon reflexes It is estimated that such features are common in trichinosis and occur in 10 to 17% of the cases [5] Merritt and Rosenbaum,[6] in reviewing 110 cases of trichinosis at the Boston City Hospital, found deep tendon reflex changes in 10% of the cases The prognosis in these nonspecific manifestations is good, and complete recovery is to be expected The second type of involvement includes those cases in which there is specific focal cerebral damage Cases in which focal damage is the dominant feature of trichinosis are infrequently reported When Herd [7] reviewed the literature in 1953, he found only 31 cases of reported focal cerebral damage due to Trichinella spiralis The mortality in these cases was 34% It is likely that focal damage is more common than these few cases would indicate When Sheldon [7a] studied 76 cases of trichinosis in the Wolverhampton epidemic, 13 of the patients were found to have focal cerebral damage Central nervous system complications of trichinosis have been confused with meningitis, poliomyelitis, polyneuritis, collagen diseases, encephalitis, and psychoses, among other entities

There is no specific therapy for trichinosis In the past six years there have been scattered reports in the literature [8] describing the use of cortisone and corticotropin (ACTH) in the treatment of trichinosis The following case represents an example of clearly defined focal cerebral damage due to trichinosis and suggests the reversibility of neurological signs and symptoms after combined steroid therapy The rapidity of recovery prompts renewed speculation as to the toxic, allergic, and antigen-antibody concepts of trichinosis

Report of a Case

A 43 year-old man was admitted to the Philadelphia General Hospital on the evening of April 23, 1956, in a confused, lethargic state An adequate history was not obtainable at that time It was, however, known that the patient, because of headache weakness, malaise, and fever had seen his family physician 10 days prior to admission Because it had been thought that he had acute frontal sinusitis, he had been treated with daily injections of penicillin and given penicillin and sulfonamides by mouth He failed to improve on this regimen continued to have temperatures of 101 to 103 F (38 3 to 39 4 C), and complained of intense generalized weakness Two days prior to admission, he became confused and disoriented On the day of admission he became semistuporous, and it was noted that he was unable to use his left hand

Examination —Physical examination, on admission, disclosed a well-developed male who was acutely ill He was confused and incontinent He exhibited an expressive aphasia The blood pressure was 110/70 mm Hg, pulse was 104 (regular), and respirations were 24 per minute The temperature was 102 6 F (39 3 C) rectally There were numerous splinter hemorrhages under all the finger nails, but there was no other evidence of petechiae or ecchymoses on the skin or mucous membranes There was no lymphadenopathy There was no tenderness over the maxillary or frontal sinuses There was no periorbital edema The pharynx was injected, but there was no exudate or false membrane The ears were normal The neck was freely movable and there was no evidence of stiffness or rigidity The heart was not enlarged There was a normal sinus rhythm No murmurs were audible There were scattered, moist rales in both midlungs and bases The liver and spleen were not palpable There was no peripheral edema

The neurological examination disclosed a definite wristdrop on the left He was unable to abduct or adduct his fingers or oppose the thumb of the left hand The flexor muscles of both the upper extremity and the left lower extremity were obviously weaker than the extensor muscles of these extremities The

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weakness was estimated at 30% There was normal response to pinprick and touch The diameter of both pupils was 5 mm They reacted slowly to light through a poor range The disks and vessels were normal, and there was no evidence of papilledema The cranial nerves were all intact The cerebellar tests were poorly performed due to muscle weakness There was no nystagmus The deep tendon reflexes were active bilaterally but were greater on the left than the right The plantar response was extensor bilaterally The abdominal reflexes were absent There were no meningeal signs The diagnosis on admission was poliomyelitis

A spinal puncture was performed after admission The opening pressure was equivalent to 110 mm H O The fluid was crystal clear Microscopic examination of the cerebrospinal fluid revealed no cells and a smear showed no bacteria The spinal fluid sugar level was 75 mg per 100 cc and the protein 19 mg per 100 cc Additional examination of the fluid showed no bacterial growth on cultures and a nonreactive Wassermann The colloidal gold curve was 000000000 A chest film showed bilateral interstitial pneumonia X-ray examination of the skull showed normal results

Results of other laboratory studies made on admission were as follows the hemoglobin level was 14 7 Gm per 100 cc the white blood cell count was 15,500 per cubic millimeter with 50% eosinophils 38% neutrophils (22% band cells 16% segmented cells) 10% lymphocytes and 2% monocytes and the blood sugar level was 83 mg per 100 cc and blood urea nitrogen 8 mg per 100 cc Urinalysis was normal Stool examination was negative for ova and parasites

History—The next morning a detailed history was obtained from the family The medical history was negative On April 1, 1956, the patient had ingested raw pork which he had purchased allowed to dry, and made into Italian sausage From April 7 to 14, the patient had complained of malaise and weakness He had aching pain in both thighs and in the left shoulder and developed intermittent diarrhea during this period He complained of frontal headaches and neck pain He was afebrile during the time and was able to continue working On April 14 he was found to have a temperature of 102 F (38 9 C) and noted marked periorbital edema The frontal headache was intense and the generalized weakness profound It was at this time that the patient suspecting this to be sinusitis, first consulted his physician Penicillin therapy was started April 15 As previously stated, the patient failed to improve and developed the neurological symptoms already noted He was admitted to the hospital 22 days after ingestion of the pork

The diagnosis of trichinosis with focal cerebral injury was made within 12 hours after admission The history of raw pork ingestion, the clinical course typical of trichinosis the findings of splinter hemorrhages, interstitial pneumonia, left wristdrop flexor muscle weakness in left arm and left leg Babinski s sign bilaterally, incontinence, and aphasia, along with completely normal cerebrospinal fluid (no cells, normal protein level and normal manometrics), and the marked eosinophilia made this diagnosis feasible

On April 27, a biopsy specimen was taken from the left deltoid muscle Microscopically, the specimen showed several foci of infiltration with polymorphonuclear leukocytes and proliferation of mesenchymal cells resembling the reaction elicited by the trichinae No parasites were observed The pathological diagnosis was probably trichinosis A skin test with Trichinella antigen was negative on April 24 When the test was repeated May 14, there was a markedly positive reaction within 20 minutes

Treatment— Shortly after admission, the patient was started on therapy with 300 mg of cortisone per day and given 80 units of repository corticotropin injection intramuscularly daily This dosage was continued for three days and then reduced to 200 mg of cortisone and 60 units of repository corticotropin injection daily for three additional days The patient s condition was then maintained with prednisone given in decreasing amounts for 10 days, after which all therapy was stopped Steroid therapy was initiated about 48 hours after the onset of confusion, lethargy, and incontinence and 24 hours after the onset of the wristdrop and muscle weakness

Course—Within 24 hours after the start of the above therapy, the patient s temperature fell to 98 6 F (37 C) where it remained during his hospitalization There was a dramatic improvement in his condition He no longer appeared to be in toxic condition or acutely ill

Mental clearing became evident 48 hours after treatment was initiated The patient became more alert and was then expressive He remained incontinent for seven days Within eight days he had returned to his former mental status He exhibited no residual changes in behavior or personality, and there was no memory defect

Muscle strength improvement was first noted five days after treatment was started The weak flexor muscles of the left extremities were obviously stronger at this time after which improvement of the wristdrop was noted The last muscles to regain strength were the intrinsic hand muscles It was felt that all muscle strength was normal 13 days after admission The extensor plantar responses became flexor responses after the ninth hospital day The deep tendon reflexes were bilaterally equal and active at the same time The abdominal reflexes could then also be elicited

The interstitial pneumonia cleared, as seen clinically and by radiographic examination, after five days The percentage of eosinophils decreased from 50 to 6 while the patient was on steroid therapy Within one week after the cessation of steroid therapy, the percentage had risen to 47 During the next two months it gradually decreased and leveled at 23% (see table)

The patient was discharged 16 days after admission, on May 9, 1956 Neurological examination at the time of discharge showed completely negative results Follow-up examinations were made at weekly intervals for five weeks after his discharge His recovery was uncomplicated His only complaint was tenderness in the left deltoid area (at the biopsy site) Muscle strength remained normal There were no residual cerebral symptoms The patient s condition was reevaluated two months after his discharge He felt perfectly well and had resumed his duties as a policeman Physical examination was normal The eosinophilia persisted

Results of Blood Studies in Patient with Trichinosis

Date 1956	Hemoglobin Gm / 100 Cc	Total Leukocytes/ Cu Mm	Eosinophils %	Neutrophils %	Lymphocytes %	Monocytes %	Basophils %
4/23	14 7	15 500	50	38	10	2	
4/24	13 9	14 250	46	36	12	6	
4/26	13 2	12 800	38	50	10	2	
4/30	12 8	11 500	26	61	11	2	
5/2	14 0	10 200	16	66	12	6	
5/7	16 6	8 400	6	51	40	2	1
5/14	15 3	11 000	47	32	20	1	
5/21	14 7	8 600	44	23	24	7	2
5/28	14 7	7 300	30	39	29	1	1
6/4	14 5	5 500	25	44	27	4	
6/18	15 1	6 000	23	34	39	2	2
7/16	14 7	6 600	23	35	40	2	

Comment

The clinical course of trichinosis involves three phases The invasion phase is the period after the encysted larvae are liberated from the infected meat They penetrate the duodenal wall, mature, and copulate This period is of a few days duration and may be characterized by the gastrointestinal complaints of diarrhea, nausea, anorexia, and vomiting, as well as sweating and weakness The second phase (dissemination) usually begins within seven days During this period, thousands of living larvae migrate throughout the body, having reached the systemic circulation through the lymphatics During this phase, urticaria, periorbital edema, fever, splinter hemorrhages, muscle pain, profound weakness, and pneumonia, as well as myocardial and nervous system symptoms, appear This phase lasts for three to six weeks, and it is during this time the acute aspects are present Gradual recovery is the rule If death occurs, it generally follows a toxic course in the fifth or sixth week The last phase is the period of encystment, wherein the larvae complete their cycle and encyst throughout the body, with a predilection for glycogen-poor striated muscle

The mechanism by which the larvae produce the clinical pattern of trichinosis, including the neurological manifestations, remains uncertain, although various theories have been proposed It is supposed by some [9] that the larvae migrate to end-arteries and capillaries, which they mechanically occlude or obstruct This blockage then produces an inflammatory reaction, with resultant injury and destruction of the involved tissue This theory would explain skeletal muscle, pulmonary, myocardial, and central nervous system damage on a mechanical basis This concept arose from histological evidence from muscle and brain sections Most and Abeles,[10] in describing the brain at autopsy in cases of involvement by the larvae, found three types of microscopic changes, described as (1) granulomatous lesions occurring as dense collections of lymphocytes, plasma cells, and a large cell with microglial elements in the form of a nodule, (2) these nodules containing the parasite, and (3) changes around blood vessels in the form of extensive perivascular infiltration They found small hemorrhages but no gross hemorrhages Hassin and Diamond,[11] in a pathological study of the brain in trichinosis encephalitis, found perivascular infiltration and endothelial proliferation There was plugging with fibrinous thrombi and rupture of small blood vessels

This concept of mechanical occlusion does not explain many of the signs and symptoms of trichinosis There is much to suggest a toxin produced by the larvae or by the body's reaction to the larvae The early manifestations of the disease resemble toxemia Thus far, no toxin has been identified, and there is no evidence that such a toxin is produced [2] During the migration of the larvae, the response appears to be allergic in character Urticaria (which may be the initial sign), angioneurotic periorbital edema, eosinophilia, and splinter hemorrhages all speak for an allergic element in the disease

Luongo and associates,[12] considering these toxic and allergic elements, used corticotropin in three cases of trichinosis and noted marked clinical improvement However, in a study using corticotropin in guinea pigs with experimentally produced trichinosis, they were unable to demonstrate any anatomic differences in either the larvae or the reaction of the host It was felt that the toxic effects on the animals were reduced with corticotropin, but that the mortality was unchanged with excessive administration of the larvae

Davis and Most [13] obtained a series of muscle sections from a patient treated with corticotropin, they noted no effect as far as muscle invasion was concerned but found a reduction in the inflammatory reaction Corticotropin was not larvicidal They felt that corticotropin and cortisone had a beneficial but nonspecific effect which in some way modified the body's response to invasion

Other than the toxic and allergic concepts of trichinosis, a factor that has been considered is that the early phases may represent an antibody-antigen reaction, directly or indirectly Aikawa, Harrell, and Miller,[14] in studies with experimentally produced trichinosis in rabbits, found an increase in the permeability of the capillary walls and a redistribution of fluid in the extravascular spaces They felt that the edema and urticaria are due to altered permeability of membranes and that excessive hydration of nerve cells may explain the psychic element The rationale of using corticotropin is "to restore the physiologic integrity of membranes "

The reports on corticotropin and cortisone in trichinosis would indicate that striking improvement can be expected after their use In the case herein reported, within 24 hours after steroid therapy, a patient obviously in toxic condition and acutely ill showed marked improvement The neurological complications were definite and included muscle group weaknesses, pyramidal tract signs, aphasia, and altered reflexes These cleared completely after the use of steroids While it is known that many of the neurological signs are normally reversible, the severity of these signs would suggest a poor prognosis The rapidity of disappearance of the neurological deficits would imply that the steroid effect is more likely related to the control of allergic, toxic, or antigen-antibody reactions than to the anti-inflammatory ability of the steroids The prompt treatment with steroids would appear to be related to the reversibility of the neurological changes in this case Such changes are often permanent In this case no sequelae were demonstrated It is felt that the dramatic clinical improvement after steroid therapy is in some way related to an antigen antibody response and that use of steroid therapy early in the course of the disease is indicated

Summary

Trichinosis commonly involves the central nervous system Such involvement may produce either nonspecific neurological signs (headaches, neck stiffness, and decreased deep tendon reflexes) or actual focal cerebral damage, which may be of a protean type In a case of focal cerebral damage due to *Trichinella spiralis* a dramatic, prompt improvement was noted after treatment with corticotropin (ACTH) and cortisone The patient recovered completely Much of the clinical picture of trichinosis suggests an antigen antibody reaction or toxic and allergic elements The rapid recovery with reversal of focal neurological damage after steroid therapy may be related to these aspects

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LUNG COLLAPSE IN AVIATION

Lieut Andrew S Markovits (MC) U S N R
and
Capt Richard B Phillips (MC), U S N

The problem of spontaneous pneumothorax is serious enough in normal occupations, in aviation it becomes more critical because of the victim's possible incapacitation and subsequent inability to control the aircraft Also, the role of decreased barometric pressure in flight as an etiology of pneumothorax must be considered and evaluated for risk Some high-level military and civil aviation policy based on the few cases available might well be in order as a guide for future cases

Report of a Case

A 29-year-old pilot of a Navy F9F8 Cougar (high-performance jet aircraft), while his aircraft was being chased by another jet, performed a power dive from 30,000 to 10,000 ft in an attempt to evade the chaser Shortly after starting his pull-out and while under a stress of 6 G, which was maintained for about eight seconds, he experienced a rather sharp pain under his left scapula (In aviation, in expressing the force of acceleration, G is one gravitational unit and equals 1 lb of force divided by 1 lb of *mass of the pilot Greater accelerations are expressed in* multiples of G Blackout occurs above 7 G in most pilots) It was not too severe, and he thought perhaps he had pulled a muscle' in turning around as far as he could to watch the pursuing plane He went on into the field and made a normal landing

The following day he played 18 holes of golf at a sea-level course with no difficulty He then went up on another jet hop, but, when he reached 27,000 ft, he had a sensation as though he were going 'to smother He was using an oxygen mask at the time, and the plane's cabin was pressurized to only 15,000 ft He returned to the base immediately without any further difficulty That week end he went on a trip and played golf on two days However this time he noticed that he had more breathlessness than he usually experienced in walking around the course The altitude of the golf course where he played is about 3 000 ft

Two days later, and seven days after the dive mentioned above he came to the station hospital complaining of congestion in his chest He looked well Physical examination revealed absence of breath sounds over the entire left lung field and hyperresonance to percussion An x-ray of the chest showed a 90% collapse of the left lung (see figure) He was sent to the U S Naval Hospital, Yokosuka, Japan, where approximately 1 800 cc of air was aspirated from the left pleural cavity Further treatment consisted only of rest, and the patient s lung reexpanded totally in three weeks The patient was discharged a month after admission

His carrier was at sea when he returned to Atsugi, Japan and he was kept grounded for one week On the eighth day after his return to duty, he was permitted to fly a routine hop to 35,000 ft (cabin pressure 20,000 ft) This was accomplished without event Two days later he went to 43 000 ft for eight minutes and 45 000 ft for three minutes, on pressure breathing also without event Shortly thereafter, he went to Southeast Asia and flew over 30 hours in the same type aircraft without any symptoms

Comment

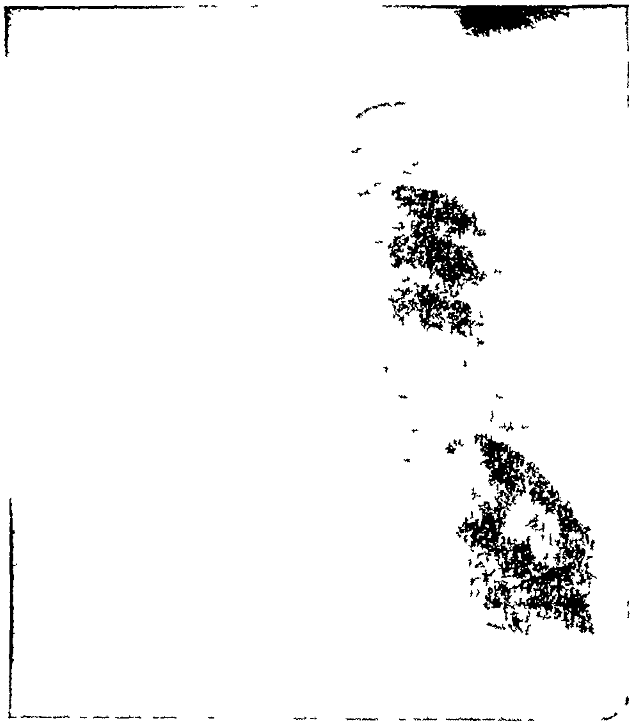
A review of recent literature reveals only two other cases of in-flight spontaneous pneumothorax,[1] neither one occurring in solo type or high-performance type of aircraft, and one case of spontaneous pneumothorax that occurred in a low-pressure (altitude-training) chamber It is interesting to note that, in the case of a 21-year-old marine with a spontaneous pneumothorax, the following entry was made on the patient's health record "Because of the condition in this marine, who is connected with aviation, it is advisable that this man never fly again because of the danger of recurrence during flight He is transferred to the U S Naval Hospital for further treatment and disposition with the recommendation that, in due time, survey from the service be definitely considered "[2]

Flight Surgeon, Air Transport Squadron 23 (Lieutenant Markovits) and Flight Surgeon, Senior Medical Officer (Captain Phillips), Naval Air Station, Atsugi, Japan Dr Markovits is now at the Mendocino State Hospital, Talmage, Calif

Read before the fourth Far East Air Forces Medical Conference, 6407th USAF Hospital, Tachikawa Air Force Base Japan, May 7, 1956

It is obvious that the case of the marine and our case of the Navy pilot were handled by vastly different methods No doubt one reason was the extroverted, enthusiastic personality of the Navy pilot, which led to optimism on our part Moreover, we were confronted with a man whose whole career and interest was flying, and we felt we could not justify permanent or even prolonged grounding

Despite the fact that the conditions experienced by the patient are not enough to justify absolutely a diagnosis of traumatic pneumothorax, we believe that the case must be regarded as a spontaneous pneumothorax brought about by the following traumatic conditions 1 Decrease in atmospheric pressure Before the dive commenced, there was a cabin pressure of about 15,000 ft, or about 50% atmospheric pressure, which would tend to bring about a ballooninflating type of phenomenon with rupture of a pleural bleb and pneumothorax Also, there was the added paradox of the rupture probably occurring during an increase of atmospheric pressure from 50% to about 70% during the dive, however, any change in pressure could bring about stress and subsequent rupture in a bleb which did not always freely communicate with a larger bronchiole 2 Gravitational force of the pullout 3 Marked increase in intra-abdominal and consequently in intrathoracic pressure brought about by G-suit pressure and the natural straining against the G-suit and G forces (A G-suit is a tight-fitting, pantslike outfit which applies pressure, by means of automatically inflated rubber bladders, to the calves, thighs, and abdomen in order to prevent pooling of blood in the extremities from increased gravitational force) 4 Torsion of the body while the pilot was craning his neck aft to watch the chase plane



Chest x-ray showing 90% collapse of left lung with minimal mediastinal shift at time of patient s admission to hospital

Persons suffering spontaneous pneumothorax may be divided into two large groups the pathological and the so-called healthy groups[3] The pathological cases are those in which there is associated pulmonary disease, such as tuberculosis, emphysema, bronchiectasis, empyema, asthma, lung abscess, carcinoma (primary and metastatic), pneumonia, and pulmonary infarction, in that order These cases will not even be considered, because their existence should not be too difficult to establish

The so-called healthy cases are generally considered to be due to rupture of bullous emphysema or visceral pleural blebs Autopsies have shown that there are often valve-like pieces of tissue present, which could conceivably lead to increased pressure and rupture[4] However, this is usually a clinical diagnosis, since ordinarily there is no radiologic evidence of the disorder and since the treatment is usually conservative Thus few patients become subject to surgical intervention, and consequently definite verification of the diagnosis is not obtained

A survey of several large series of patients puts the recurrence rate at about 15%[5] The condition is most common in the second and third decades of life It is more common in males than females, and the right lung is more often affected than the left The figures and opinions concerning the effect of physical exertion on bringing on the condition vary from no effect to 20%, however, the average figures on the number of patients engaged in physical exertion at the time of a spontaneous pneumothorax is about 15% Thus it is obvious that there is a very real possibility of recurrence in flight or elsewhere

The United States Navy and Air Force,[6] in general do not restrict aviators from further flying until the second recurrence, at which time they are permanently grounded The (British) Royal Air Force usually requires aviators to undergo pleurodesis" (stimulation of pleural adhesions by instillation of an irritant, usually dilute silver nitrate, into the pleural cavity) before allowing further flying

Program for Aviators

Obviously no dogmatic policy applies or can well be formulated, but a conservative program for well motivated, otherwise healthy, career aviators might be as follows 1 Surgical intervention should be performed if at all indicated in order to determine cause of spontaneous pneumothorax and to prevent possible recurrence from other blebs, with possible irritative stimulation of pleural adhesions 2 After complete reexpansion of the lung, test runs should be made in low-pressure chambers under close medical supervision 3 There should be restriction to nonsolo flights for a period of time, possibly three months 4 Discussion of the problem with the patient is necessary, so that he will be aware of the symptomatology of the disorder and of the necessity of prompt medical attention in the event of recurrence

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The opinions expressed in this article are those of the authors and are not necessarily those of the Department of the Navy

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COUNCIL ON FOODS AND NUTRITION

Report to the Council

The Council has authorized publication of the following report The Council is pleased to acknowledge the co-sponsorship of this article by the Nutrition Foundation, Inc

Philip L White, Sc D, *Secretary*

AMINOACIDURIA IN RELATION TO DEFICIENCY DISEASES AND KIDNEY FUNCTION

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and
Helen C Harrison, Ph D, Baltimore

The urinary excretion of free amino acids by the normal person is slight, urine amino nitrogen accounts for only about 1 to 2% of total urine nitrogen Together with free amino acids, the so-called combined amino acids, which are converted to free amino acids by acid hydrolysis, are present in urine The amino acids that are found in increased amounts after acid hydrolysis are mainly aspartic acid, glutamic acid, and glycine, which come from the hydrolysis of asparagine, glutamine, and hippuric acid In addition, other amino acids are released from the small amounts of peptides present in the urine

The free amino acids of plasma are ultrafiltrable, and their concentration in glomerular filtrate can be assumed to be the same as that in plasma water If the quantity of amino acids estimated to be present in the total glomerular filtrate formed is compared with the free amino acids in urine, it becomes evident that all but a small fraction of filtered amino acids is normally reabsorbed by renal tubules If plasma amino acid levels are raised so that the load presented to the tubules is sufficiently increased, tubular reabsorption is less complete, and increased excretion of amino acids in urine results This hyperaminoacidemic or 'overflow" aminoaciduria is analogous to the glycosuria resulting from hyperglycemia Aminoaciduria may occur, however, with normal or even reduced concentrations of amino acids in plasma This may be termed renal aminoaciduria implying impairment of tubular reabsorption of amino acids by analogy with renal glycosuria

In the past few years, methods for qualitative detection and quantitative determination of individual amino acids have been developed, so that studies of the concentrations of individual amino acids in plasma and urine in various disease states are now feasible Paper chromatography makes possible the qualitative identification of the amino acids, and it can also be used for quantitative measurements[1] This technique accomplishes the separation of amino acids on filter paper by means of the relative solubilities of the acid in organic solvents and water More precise quantitative determinations of separate amino acids can be made by column ion-exchange chromatography[2] In this method a solution of amino acids is applied to a column of ion-exchange resin that binds the amino acids, the acids are then eluted by the flow of solutions of progressively increasing pH through the column They are separated as they are eluted from the column and can be quantitatively measured in the various eluate fractions Quantitative determination of amino acids may also be made by microbiological assay In addition, the quantity of certain amino acids may be measured by specific chemical or physical methods Among the results obtained by these various methods, some discrepancies are found, but on the whole the agreement is adequate to permit calculation of normal values

Normal Urinary Excretion of Amino Acids

The problem of aminoaciduria is complex because more than 20 individual amino acids are present in the plasma in varying concentrations, and they are reabsorbed with varying degrees of efficiency by renal tubules In figure 1 the concentrations of amino acids in the plasma of normal persons are shown and com-

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From the Pediatric Division, Baltimore City Hospital, and Department of Pediatrics, Johns Hopkins University School of Medicine

pared with average daily excretion of these amino acids in urine These values have been recalculated from Evered's data [3] The differences in the relative proportions of amino acids in plasma and urine indicate that noticeable differences occur in the reabsorption of individual amino acids by the renal tubules Glycine and histidine are less completely reabsorbed than the other amino acids, and certain of the essential amino acids—methionine, valine, leucine, isoleucine, and phenylalanine—are almost completely reabsorbed from glomerular filtrate Therefore, the quantity of individual amino acids in urine reflects both the concentration of the amino acid in plasma and the degree of its reabsorption by renal tubules Both hyperaminoacidemic and renal aminoaciduria can be specific either for a single amino acid or for limited groups of amino acids, or generalized with increased excretion of all or almost all of the plasma amino acids, even though in varying amounts

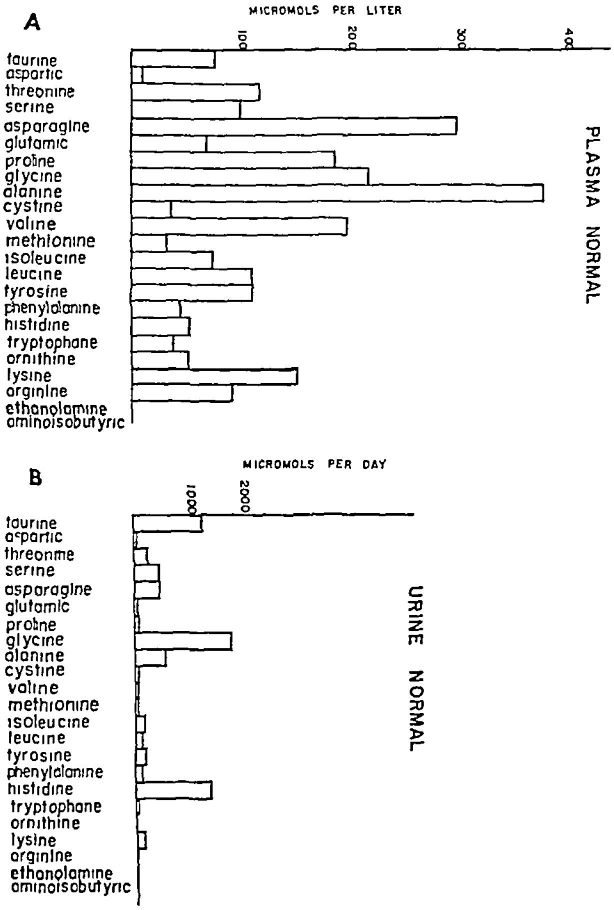

Fig 1 —*A*, concentrations of individual amino acids in plasma of normal adults *B* daily urinary excretion of free amino acids by normal adult males

In the normal person, urinary amino acid excretion is not greatly increased after the ingestion of a protein meal, despite the occurrence of a measurable increase in plasma amino acids The 24-hour excretion of amino acids by individuals on high-protein diets is, however, higher than that of persons with low protein intakes, particularly with respect to the excretion of histidine [3] The plasma amino acid concentrations of the few infants studied have been approximately the same as those of adults [4] Urinary amino acid excretion is greater in the infant than in the adult when compared to total urine nitrogen or weight, but estimated renal clearances corrected for surface area show no great differences between infants and adults The relatively high urine amino acid nitrogen excretions of young prematurely born infants—3 to 4% of total urine nitrogen—might be a function of high protein intake or a result of less complete reabsorption of amino acids by immature renal tubular mechanisms

Abnormal Urinary Excretion of Amino Acids

Phenylketonuria —The most striking example of specific aminoaciduria of the hyperaminoacidemic type is the increased output of phenylalanine in the urine in phenylketonuria (phenylpyruvic oligophrenia) (fig 2) In this inborn error of metabolism, the hydroxylation of phenylalanine to tyrosine, which is an essential step in the oxidation of phenylalanine, is defective [5] Plasma levels of phenylalanine are markedly increased, and correspondingly, the urinary excretion of phenylalanine is greatly elevated The urinary excretion of other amino acids is not altered, but the excretion of phenylpyruvic and phenyllactic acids, metabolic products of phenylalanine, is increased

Generalized in Severe Liver Damage —Generalized hyperaminoacidemia and resultant overflow" aminoaciduria are found in patients with severe liver damage (fig 3) either because of infectious or toxic hepatitis with liver necrosis or because of cirrhosis with far-advanced destruction of liver parenchyma [6] Taurine, cystine, methionine, ethanolamine, and β aminoisobutyric acid are found in relatively greater amounts in hepatic aminoaciduria than in the generalized renal aminoacidurias The presence of these amino acids in disproportionate amounts in the urine may be an indication that the aminoaciduria is caused by hepatic failure

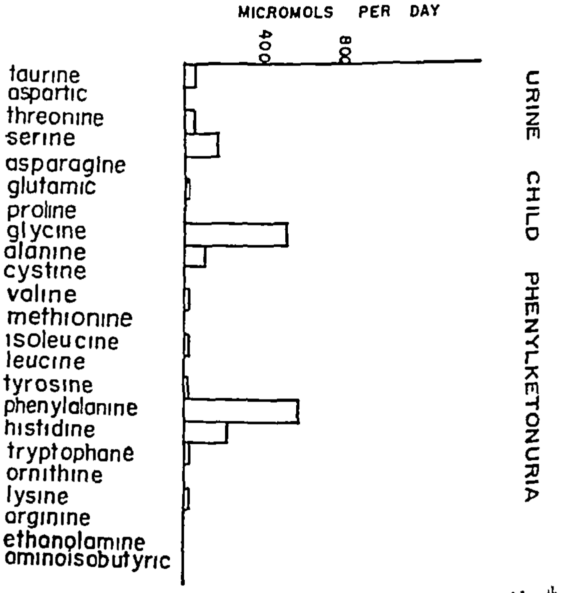

Fig 2 —Daily excretion of amino acids in urine of child with phenylketonuria (recalculated data from Evered [3])

Cystinuria—Of the greatest clinical and physiological interest are the aminoacidurias of renal origin, for which defects of renal tubular reabsorption of amino acids are responsible They also may be specific or generalized Among the specific renal aminoacidurias, cystinuria is the one about which most is known This hereditary disturbance was the earliest of the aminoacidurias to be recognized clinically Its early recognition resulted from the crystallization of cystine in the urine and the formation of cystine calculi caused by the relative insolubility of cystine in acid or neutral solutions Only recently, however, has the pathogenesis of cystinuria been explained Not only cystine, but also lysine, arginine, and ornithine are excreted in excessive amounts (fig 4) The plasma concentrations of these amino acids are not elevated, and evidence indicates that there is not a generalized disturbance of cystine metabolism in the tissues Rather, a limited defect of the renal tubular reabsorption of the amino acids cystine, lysine, arginine, and ornithine occurs[7] Other amino acids are handled in a normal fashion

It is of interest to note that loading dogs with arginine increases the clearances of lysine, and injections of lysine cause increased renal clearances of arginine These two amino acids appear to share some common mechanism in the renal tubules[8] In patients with cystinuria, the increased cystinuria that follows ingestion of cysteine or methionine is caused by the normal conversion of these amino acids to cystine, with consequent elevation of plasma cystine levels and increase in the amount of cystine filtered through the glomeruli It has been estimated that practically all of the cystine filtered may be excreted in the urine of patients with cystinuria The only clinical consequence of this disorder is the formation of renal calculi due to precipitation of cystine

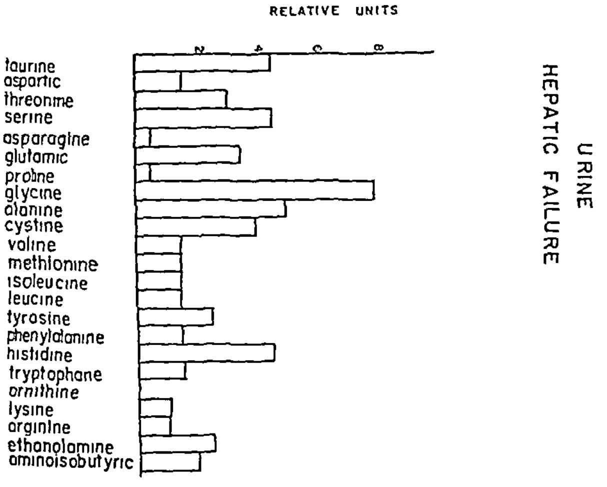

Fig 3—Amino acids in urine of patient with severe hepatic disease On this scale the excretion of amino acids in normal subjects was glycine, 3 units taurine 1 5 units and histidine, 0 5 units

More intensive studies of amino acid excretion in apparently normal persons have revealed other examples of specific renal aminoacidurias in which excretion of a single amino acid is increased without evident physiological disturbance[3]

Renal Aminoaciduria Fanconi Syndrome

General—The generalized renal aminoaciduria that has received the greatest attention is that associated with the Fanconi syndrome The earliest reports of this syndrome described a hereditary error of metabolism in children These children manifested disturbances of growth and the bony changes of rickets associated with hypophosphatemia, chronic metabolic acidosis, glycosuria, and excessive amounts of organic acids in the urine that were later shown to be amino acids[9] The application of the paper chromatographic method of urine amino acid identification by Dent gave a great impetus to the study of this syndrome, and the aminoaciduria was found to be a generalized one In absolute terms, the excretion of glycine, the amino acid normally present in the largest quantity in the urine, is increased to a greater extent than other amino acids Yet the most striking proportionate increases are in the excretion of amino acids that have low endogenous clearances in the normal person (fig 5) The excretion of threonine, serine, alanine, tyrosine, and lysine may be more than 20 times greater than in the normal subject Noticeably increased excretion of such essential amino acids as leucine, isoleucine, valine, methionine, and phenylalanine, which are ordinarily excreted in only trace amounts, also occurs Cystine output, although somewhat increased, is not as great as in patients with cystinuria

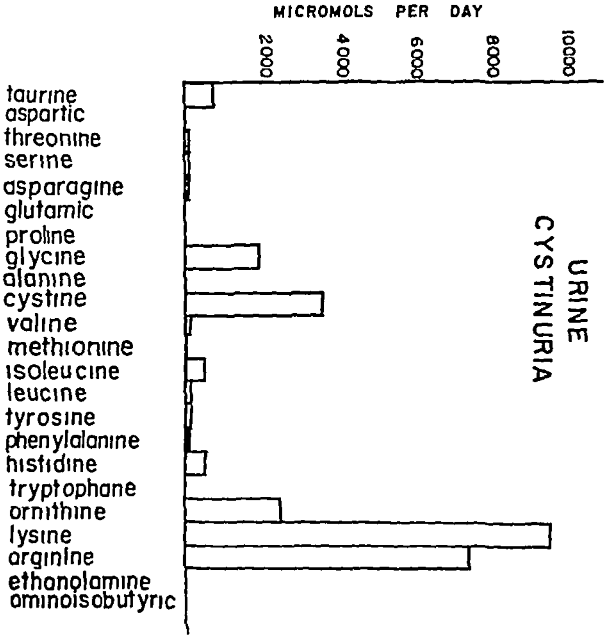

Fig 4—Daily urinary excretion of amino acids by patient with cystinuria (recalculated data from Evered[3])

Cystinosis—Investigations have shown that in the hereditary form of the Fanconi syndrome, which has its onset in infancy, there is an abnormality of cystine metabolism with deposition of cystine in the tissues Cystine crystals are found primarily in macrophages in the reticuloendothelial system, including liver, spleen, bone marrow, and lymph nodes, as well as in kidney and subcutaneous tissue Cystine crystals are also found in the cornea where they can be seen by slit lamp microscopy, a helpful diagnostic tool This variety of Fanconi syndrome is referred to as cystine storage disease or cystinosis, and sometimes the eponymic designation, Lignac-Fanconi syndrome, is used [10]

Because of the discovery of cystine crystals in tissues, the theory that the aminoaciduria of cystinosis is due to hyperaminoacidemia has been proposed More recent studies have indicated, however, that the concentrations of the individual amino acids in plasma are not elevated but that the clearances of amino acids are greatly increased, thus indicating a generalized defect of tubular reabsorption of amino acids [3] The glycosuria shown by these patients is also of renal origin because of the impairment of tubular reabsorption of glucose The hypophosphatemia is likewise considered to be the result of a defect in the renal tubular mechanism for reabsorption of phosphate The latter is one of the important regulatory mechanisms in the maintenance of serum phosphate levels Other manifestations of abnormalities of renal tubular functions sometimes observed are chronic acidosis and the tendency to lose potassium It has been suggested that there is a congenital anatomic defect associated with the functional defect, since microdissection of nephrons from kidneys of patients with the Fanconi syndrome has shown an unusual narrow segment of tubule, linking glomerulus and proximal convoluted tubules, resulting in a shortening of the true proximal convoluted tubule [11] Opposed to the concept of a primary congenital defect of the tubule is an observation made in infants from a family with multiple cases of cystinosis Careful study of these infants from birth indicated that glycosuria, aminoaciduria, and hypophosphatemia were not present at birth but appeared after several months These defects were preceded by the appearance of cystine crystals in tissues [12] The interpretation of these observations is that the primary and as yet unidentified metabolic defect in cystinosis leads to increased cystine content of tissues and that renal tubule injury results only after some period of time This concept is important because Fanconi syndrome, using the term as applied to the constellation of hypophosphatemia with rickets or osteomalacia, renal glycosuria, and renal aminoaciduria, can occur sporadically in older children and adults without familial incidence and without evidence of cystine deposition in tissues In this group the functional lesion of the renal tubules is caused by some metabolic injury other than the specific defect of cystinosis, although the disturbance of renal tubular function, the pattern of aminoaciduria, and many of the clinical manifestations are similar to those seen in cystinosis (fig 6)

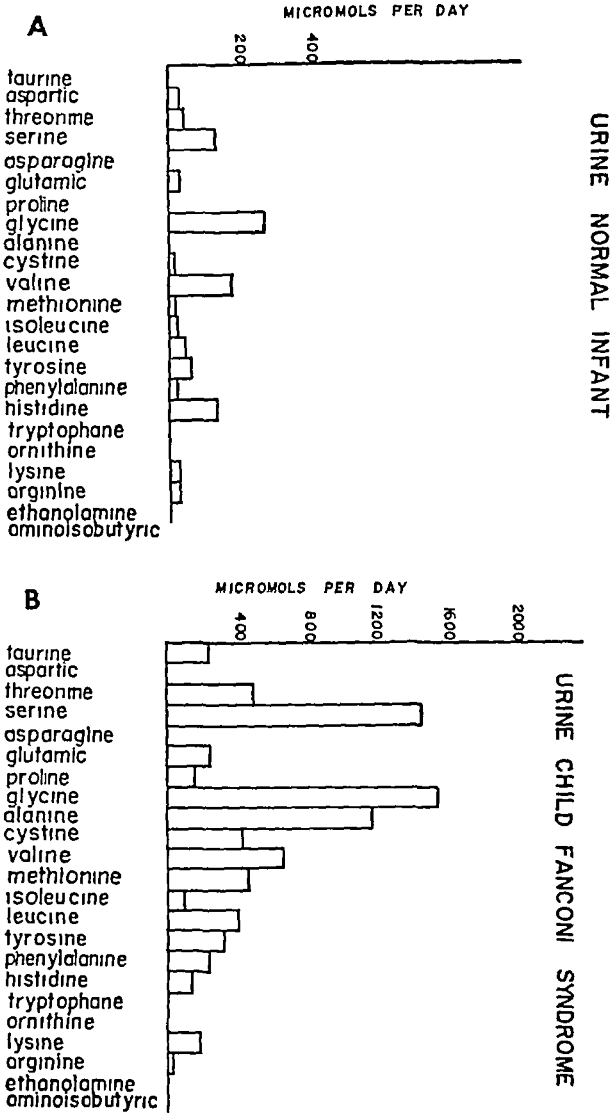

Fig 5—*A*, urinary excretion of amino acids by normal infants (according to Jonxis [4a]) *B* urinary excretion of amino acids by child with Fanconi syndrome caused by cystine storage disease

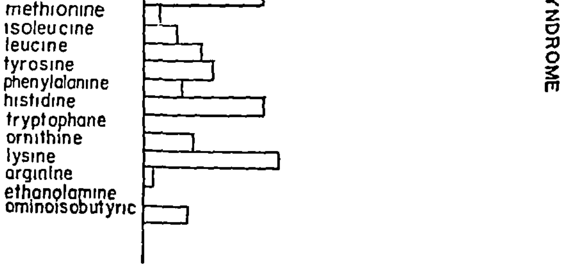

Fig 6—Urinary excretion of amino acids by adult with Fanconi syndrome of unknown etiology (recalculated data from Evered [3])

Heavy Metal Toxicity—The renal tubular dysfunction characteristic of the Fanconi syndrome can be produced by known toxic agents The heavy metals uranium, lead, and cadmium have been found to cause renal aminoaciduria and glycosuria in exposed subjects [11] At least one instance of lead poisoning in a child has been reported in which aminoaciduria and glycosuria were also associated with persistent hypophosphatemia and rickets [14] In this child the acquired Fanconi syndrome was resolved after treatment of the lead poisoning Experimentally, renal glycosuria, phosphaturia, and aminoaciduria have been produced in rats by injection of an organic acid —maleic acid [15] All of this evidence suggests that the Fanconi syndrome may have multiple etiologies in which the common denominator is renal tubular injury with impairment especially of the systems that are important in the renal tubular handling of amino acids, glucose, and phosphate

Renal Aminoaciduria in Galactosemia and Wilson's Disease

Generalized renal aminoaciduria may also be found without glycosuria or disturbance of phosphate regulation Aminoaciduria has been reported in galactosemia and in Wilson's disease, both genetically determined metabolic disorders In both, aminoaciduria is apparently a manifestation of renal tubular dysfunction secondary to the primary metabolic defect In galactosemia, in which there is a block in the metabolism of galactose, the aminoaciduria disappears if a diet free of galactose is fed In Wilson's disease a deficiency of ceruloplasmin, the copper-binding protein of plasma, is associated with increased absorption and retention of copper in body tissues The renal tubular defect appears late and is presumed, therefore, to be a remote effect of the primary disturbance of copper metabolism Although the renal aminoaciduria of Wilson's disease is not ordinarily associated with the other renal tubular disorders of the Fanconi syndrome, glycosuria and hypophosphatemia with osteomalacia have been reported in a few patients [16] Studies by the paper chromatography method have suggested that there are qualitative differences among the various renal aminoacidurias in the pattern of amino acids excreted, but in many instances the differences are quantitative rather than qualitative (fig 7) If the aminoaciduria is of only moderate degree, certain amino acids may not be excreted in sufficient amounts to be detected by the qualitative method However, a special group of patients with hypophosphatemia and osteomalacia have been reported, in whom the excretion of glycine was increased without proportionate increase of other amino acids [17] The number of syndromes in which renal aminoaciduria is found has been expanded rapidly in recent years, and it is highly likely that additional ones will be discovered as studies of amino acid excretion are made in obscure metabolic disorders

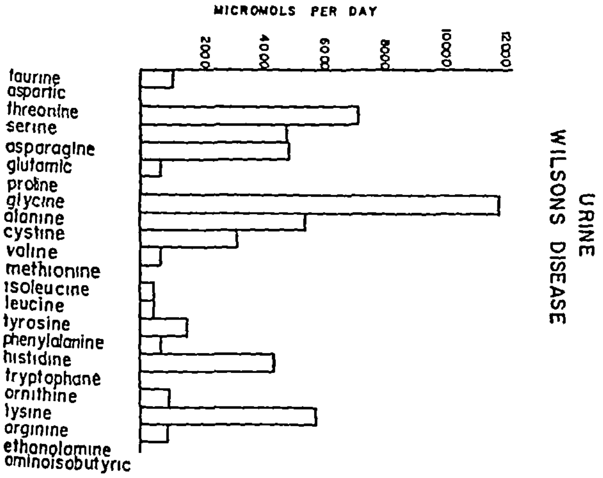

Fig 7 —Amino acid excretion in urine of patient with Wilson's disease (according to Stein and co-workers [16b]) Note similarity of pattern of aminoaciduria to that of adult with Fanconi syndrome of unknown etiology (fig 6)

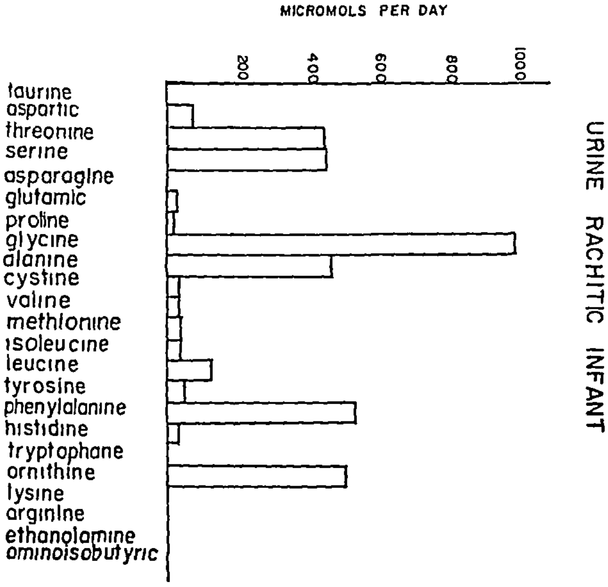

Fig 8 —Amino acid excretion of infant with vitamin D deficiency rickets (according to Jonxis [4a])

Renal Aminoaciduria in Vitamin D Deficiency

An interesting and theoretically important group of generalized renal aminoacidurias is that group associated with vitamin deficiency states Renal aminoaciduria has been reported in infants both with vitamin D and with vitamin C deficiencies The aminoaciduria of vitamin D deficiency is particularly significant, since the excretion of free amino acids by infants with vitamin D deficiency rickets may be qualitatively similar to that seen in the Fanconi syndrome, however, it is quantitatively less pronounced (fig 8)

The greatest proportionate increases, in comparison with the excretions of the normal infant, are in the excretion of threonine, serine, and alanine In this infant the excretions of valine, methionine, leucine, isoleucine, and phenylalanine are also slightly increased In infants with vitamin D deficiency rickets whom we have studied, the excretion of these essential amino acids was significantly increased, as measured by semiquantitative paper chromatography Treatment with vitamin D results in a return of amino acid excretion to normal, although the effect of vitamin D on aminoaciduria lags behind its action on the calcium and phosphorus levels of plasma and the initiation of healing of the rickets.

At first glance, the wide spectrum of errors of metabolism, toxic injuries, and deficiency states in which generalized renal aminoaciduria of varying degrees may be found, appears to blur the significance of this manifestation. It would seem that renal tubular reabsorption of amino acids is extremely sensitive to a variety of factors that interfere with renal tubule cell metabolism and diminish the efficiency of tubular reabsorption of these vital substances. However, aminoaciduria does not occur in diffuse renal diseases, with glomerular injury such as chronic pyelonephritis, chronic glomerulonephritis, and nephrosclerosis,[18] although it has been reported in children with the nephrotic syndrome.[19] Certain specific types of tubular dysfunction are also not always associated with aminoaciduria; for example, aminoaciduria is not a constant finding in renal tubular acidosis in which the renal tubule mechanisms concerned with the formation of acid urine are abnormal.

In some patients with renal tubular acidosis and associated hypophosphatemia and rickets, generalized aminoaciduria does occur. It responds to treatment with vitamin D and alkalinizing salts, just as does the aminoaciduria of vitamin D deficiency rickets. The administration of acetazolamide (Diamox), which is believed to inhibit the secretion of H+ ion in exchange for Na+ or K+ in the renal tubule, does not produce any considerable degree of aminoaciduria. Renal glycosuria of the congenital type is presumably an isolated defect of tubular reabsorption of glucose, but, in one case of renal glycosuria studied, the glycosuria was associated with generalized aminoaciduria similar to that seen in the Fanconi syndrome. This patient showed normal levels of phosphate in serum and no osteomalacia. Further studies of other cases of renal glycosuria regarding the presence of aminoaciduria would be of interest.

A most intriguing problem is the relationship of renal aminoaciduria to disturbances of phosphate metabolism and to vitamin D function. In vitamin D deficiency states, renal aminoaciduria is found; a defect of renal tubular reabsorption of phosphate also occurs, which is important in the genesis of the hypophosphatemia of rickets and osteomalacia. The association of renal aminoaciduria, glycosuria, and a defect of renal tubular reabsorption of phosphate in the Fanconi syndrome has already been emphasized. Clinical poisoning with lead or other heavy metals and experimental maleic acid poisoning can likewise produce the combined defects of renal aminoaciduria, glycosuria, and phosphaturia. This might be explained by the postulation that a common renal tubular transport system for amino acids, phosphate, and glucose exists. There is some evidence of mutual interference between glycine and phosphate in tubular function, but renal aminoaciduria may occur without disturbance of phosphate metabolism and without glycosuria; thus, these tubular functions may be altered independently of each other. It may be significant, however, that vitamin D administration can influence aminoaciduria when the aminoaciduria is associated with a defect of tubular function involving phosphate regulation. This is true in simple vitamin D deficiency states in which the aminoaciduria gradually returns to normal after physiological doses of vitamin D. In the Fanconi syndrome, whether it is due to cystinosis or to other mechanisms, the aminoaciduria can also be reduced, although not necessarily restored to normal values, by large doses of vitamin D. It would be interesting to explore the effect of vitamin D in those cases of Wilson's disease or other forms of generalized renal aminoaciduria in which no obvious defect of tubular reabsorption of phosphate is present. The effect of vitamin D upon renal aminoaciduria in ordinary rickets and in the Fanconi syndrome would be consistent with the previously suggested hypothesis that one of the mechanisms of action of vitamin D is through an effect upon the function of the renal tubules.

Summary

Aminoaciduria may result from disturbances of the metabolism of amino acids that cause their concentrations in plasma to increase, or from defects of renal tubular reabsorption of amino acids, in which case the levels of amino acids in plasma are normal or reduced. In either type, the defect may be specific for a single amino acid or a limited group of amino acids, or it may be generalized, involving essentially all of the amino acids. Differences among the amino acids exist normally, concerning their concentration in plasma and also the completeness with which they are reabsorbed by the renal tubules. There are also corresponding differences in the degree to which the concentrations of individual amino acids are increased in the urine in the generalized type of renal aminoaciduria. Renal aminoaciduria may result from many types of renal injury caused by inborn errors of cell metabolism, toxic agents, or vitamin deficiency states. The association of renal aminoaciduria with renal glycosuria and phosphaturia and with hypophosphatemic rickets or osteomalacia known as the Fanconi syndrome may be caused by a congenital metabolic defect or by acquired renal tubular injury. Vitamin D either directly or indirectly influences the renal tubular mechanisms involving reabsorption of amino acids and phosphate. In certain varieties of renal aminoaciduria associated with a disturbance of phosphate metabolism, amino acid excretion may be reduced or restored to normal by administration of vitamin D.

The application of newer techniques for measuring individual amino acids in urine has proved valuable in increasing our understanding of physiological disturbances in which amino acid metabolism or renal

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Ethinamate	(Eli Lilly & Company)
Meprobamate	(Wallace Laboratories) (Wyeth Laboratories)
Methoxsalen	(Paul B Elder Company)
Methscopolamine bromide	(Lincoln Laboratories Inc) (The Upjohn Company)
Methscopolamine nitrate	(R J Strasenburgh Co)
Oxtriphylline	(Nepera Laboratories Division, Warner-Lambert Pharm Co)
Pipradrol hydrochloride	(The Wm S Merrell Co)
Primidone	(Ayerst Laboratories)
Propantheline bromide	(G D Searle & Co)

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CHEMICAL LABORATORY

The Chemical Laboratory has authorized publication of the following statement

WALTER WOLMAN, PH D, *Director*

Monographs of tests and assays for new and nonofficial drugs adopted by the Chemical Laboratory of the American Medical Association represent an expression of opinion as to what might constitute adequate tests and assays to serve as a reference guide to those interested in the identity and quality of a new and nonofficial drug

Completed monographs are published in the journal *Drug Standards* for those interested in the details of the procedures Monographs on the following drugs have appeared in the May-June, 1957, issue of that journal The cooperation of the listed pharmaceutical firms that furnished samples and data is acknowledged

Butabarbital sodium	(The Bowman Bros Drug Co) (Chemo Puro Mfg Corp) (McNeil Laboratories, Inc) (Premo Pharmaceutical Labs , Inc)
Crotamiton	(Geigy Pharmaceuticals)
Diatrizoate sodium	(Winthrop Laboratories)
Ethinamate	(Eli Lilly & Company)
Meprobamate	(Wallace Laboratories) (Wyeth Laboratories)
Methoxsalen	(Paul B Elder Company)
Methscopolamine bromide	(Lincoln Laboratories Inc) (The Upjohn Company)
Methscopolamine nitrate	(R J Strasenburgh Co)
Oxtriphylline	(Nepera Laboratories Division, Warner-Lambert Pharm Co)
Pipradrol hydrochloride	(The Wm S Merrell Co)
Primidone	(Ayerst Laboratories)
Propantheline bromide	(G D Searle & Co)

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TESTING FOR AMINOACIDURIA

Frequently the physician reads of some new laboratory procedure that is not adapted for the average clinical laboratory and yet is of such practical significance to his daily work that it immediately becomes a part of his diagnostic armamentarium Such is the case of the testing for aminoaciduria, the interpretation of which is reported on page 1571 of this issue of THE JOURNAL

The losses of amino acids, per se, in the urine have not been shown to be of sufficient magnitude to produce amino acid deficiencies under ordinary dietary conditions Aminoaciduria results from disturbances of the metabolism of amino acids It can equally result from defects in the renal tubular reabsorption of the same amino acids, and, in regard to this latter phase, etiology would include many types of renal injury caused by inborn errors of cell metabolism, toxic agents, or vitamin deficiency states In other words, studies revealing renal aminoaciduria are important in the elucidation of the mechanism of disease, as well as in diagnosis and treatment

One of the many specific conditions in which a practitioner would want to determine urinary amino acid excretion would be in his effort to discover early stages of intoxication due to industrial exposure to heavy metals, particularly lead The heavy metals, including uranium and cadmium, have been found to cause renal aminoaciduria (as well as glycosuria) as a reflection of renal tubular dysfunction This same dysfunction can also be evidence of osteomalacia and rickets Quantitative determinations revealing unusually high amounts should suggest Fanconi syndrome, a familial disease characterized by congenital hypoplasia of the bone marrow combined with various other congenital defects

Another manifestation of congenital faulty metabolism often associated with mental defects, referred to as phenylketonuria, may be diagnosed or confirmed by testing for specific aminoaciduria The test for phenylpyruvic acid in phenylketonuria may be negative for the first month or two of life, whereas the serum phenylalanine level is high and therefore the excretion of the amino acid phenylalanine is immediately increased Early diagnosis of this condition is extremely important in infants who are siblings of similarly affected children

Early diagnosis of cystinuria not only helps in discovering cases of this somewhat similar congenital dysfunction but is of even greater value since the affected individual can be informed of simple prophylactic measures, such as alkaline-ash diet and high fluid intake, which can prevent the formation of cystine calculi

Recent reports show the occurrence of aminoaciduria in a familial pellagra-like disease In liver diseases amino acid metabolism is also affected after the disease has progressed to the point of severe loss of hepatic function While this does not seem of value in testing liver function during the early stages of liver disease, it does provide a measurement of progressive liver damage

The determination of amino acids in the urine is now widely used in large clinical and research laboratories, as well as major teaching institutions While it will probably be some time before this test is easily performed in the doctor's office, the physician in practice should be acquainted with aminoaciduria and its reflection of faulty metabolism or renal damage

MEDICAL MEETING IN ISTANBUL

The annual congress of the World Medical Association will be held in Istanbul September 29 to October 5 Now 10 years old, the World Medical Association speaks with authority for doctors throughout the free part of the world and is the only organization which can speak broadly for the doctors on an international basis The World Health Organization is, of course, of concern to many countries and their people, but its representatives are appointed by governments Since membership in the World Medical Association is based on the national medical associations, this body speaks for the doctor Its delegates and membership are not a government activity

When the World Medical Association was created in Paris more than 10 years ago, there was fear that it might have a troublesome course because of restrictions on exchange of finances and also because of the lack of money in some areas The problem was met by the creation of a United States Supporting Committee, supported by doctors and their medical organizations and by the drug industry The guarantee of support was $50,000 a year for five years, but it was not long before more than this was being raised to provide for expanding activities Today about three times this amount is raised in the United States alone, and for this doctors everywhere owe the members of the U S committee a lasting debt of gratitude Now there are supporting committees in other countries In addition, exchange of funds is easier, and the work of the World Medical Association is reflecting this situation Thus those who attend the congress in Istanbul will see the work of a body with a membership of more than 50 national medical associations embracing more than 700,000 doctors throughout the free part of the world A congress is held each year and in different parts of the world In 1956 it was in Cuba In 1959 it will be in Canada after the second World Conference on Medical Education, sponsored and organized by the World Medical Association and held in Chicago In the mean time Istanbul welcomes doctors from everywhere

ORGANIZATION SECTION

FEDERAL MEDICAL LEGISLATION

First Session, 85th Congress

Increased Wage Base Tax and Benefits Under Social Security

Representative King (D, Calif), in H R 5549, has made several amendments to the Old-Age and Survivors Insurance section of the Social Security Act He would increase the minimum survivors or dependents' benefits from $30 to $37 50 per month and increase from $200 to $250 a month the maximum amount which the widow of a covered employee with a large family may receive through this program He would raise the base salary upon which contributions are computed from the present $4,200 to $6,000 and would also raise the rate of contribution from the employees and employers from 2¼% to 3% each By 1975, the employees and employers would pay 5% each on the $6,000 wage base In the case of the self-employed the present contribution would be raised from 3⅜% to 4½% By 1975, the self-employed would be paying 7½% on a $6,000 wage base or $450 a year

Representative Dingell (D, Mich), in H R 7669, would increase from $4,200 to $6,000 the amount of annual earnings which would be taken into account in computing benefits and which are subject to Social Security taxes These measures were referred to the Ways and Means Committee

Workmen's Compensation and Disability Benefits Under Social Security

Representative Dollinger (D, N Y), in H R 7601, proposes to amend the Social Security Act to provide that a person may receive workmen's compensation benefits and still receive the full disability insurance benefits under Social Security This bill was referred to the Ways and Means Committee

Pay as-You Go Social Security

Representatives Blatnik (D, Minn), in H R 7086, and Burdick (R, N D), in H R 8099, propose a pay-as-you-go Social Security plan Benefits would be financed by an equitable gross income tax The disabled and persons 60 years of age or older would be eligible to receive a monthly benefit for as long as they live Children under 18 years of age, dependent upon another beneficiary of the program, would receive a secondary benefit equal to one-third the amount paid to the primary beneficiary

Representative Flood (D, Pa), in H R 6412, would amend the Social Security Act to 'provide that any fully insured individual who becomes permanently and totally disabled shall be deemed to have reached retirement age" The term "fully insured" would mean coverage for 40 quarters or one-half of the quarters from 1950 until the time of disability, with a minimum of 6 quarters required The disabled applicant would no longer have to meet the requirement of being covered for 5 of the last 10 years and 1½ years of the last 3 years, nor would he have to wait until the age of 50 to be eligible to receive the benefits All three bills were referred to the Ways and Means Committee

Doctor Draft Amendment

Representative Vinson (D, Ga) introduced the administration's bill, H R 6548, to amend the Universal Military Training and Service Act, which would allow the President to issue special calls for physicians, dentists, and allied specialists by profession if they are liable under the Basic Selective Service Act and have been deferred for educational training The maximum age limit was set at 35 Alien physicians who come to this country after they are 26 years of age are not liable for service Hearings were held promptly by the House and Senate armed services committees, which approved the measure The bill was passed by both Houses, was signed by the President, and became Public Law 85-62

Commission on the Doctor Shortage in the United States

Representative Dorn (R, N Y), in H R 6602, proposes to establish "a commission to study the shortage of doctors of medicine in the United States

> The Commission shall conduct a full and complete investigation and study of the shortage of doctors of medicine in the United States giving particular attention to
>
> (1) the policy of medical colleges in the United States of limiting the number of students admitted to study medicine,
>
> (2) the number of doctors of medicine being graduated annually from medical colleges in the United States
>
> (3) the extent to which hospital administrators in the United States are required to seek doctors of medicine in foreign countries for the purpose of inviting such doctors to serve internships in the United States
>
> (4) how many citizens of the United States who cannot gain admittance to medical colleges in the United States are going to foreign countries to study medicine, and
>
> (5) the extent to which the several States of the United States and the District of Columbia permit doctors of medicine who have been graduated from medical colleges in foreign countries to practice medicine in such States or the District of Columbia

The commission would submit a report to Congress making recommendations for administrative or legislative action This measure was referred to the Committee on Interstate and Foreign Commerce

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From the Washington Office of the American Medical Association

Registration and Reporting of Welfare and Pension

A series of bills have been introduced which call for the registration and reporting of welfare funds Some would require registration with the Secretary of Labor, others with the Federal Security and Exchange Commission These bills are H R 6649, H R 6650, and H R 7960, Ostertag (R, N Y), S 2137, Allott (R, Colo), H R 7607, Price (D, Ill), H R 7802, Frelinghuysen (R, N J), S 2175, Ives (R, N Y), and H R 8004, McGovern (D, S D) The Senate bills were referred to the Labor and Public Welfare Committee and the House measures to the Education and Labor Committee

Vocational Rehabilitation

Extension of Expansion Grants—Representative Wright (D, Texas), in H R 5759, proposes to extend to June 30, 1958, the special federal grants to state and nonprofit organizations and agencies for planning and initiating expansion of vocational rehabilitation programs in the states The present authorization expires June 30, 1957 This proposal was referred to the Committee on Education and Labor

Lengthening Traineeships in Physical Medicine—Senators Smith (R, N J) and Purtell (R, Conn), in S 1971, and Representative Haskell (R, Del), in H R 7155, have introduced identical measures which would give authority to the Office of Vocational Education to finance, through the states, traineeships in physical medicine and rehabilitation for courses extending in excess of two years The Senate bill was referred to the Labor and Public Welfare Committee The House bill was referred to the Committee on Education and Labor

Demonstration Rehabilitation Center—Senator Robertson (D, Va) has introduced, in S 2068, a bill to amend the Vocational Rehabilitation Act with respect to the pilot demonstration rehabilitation center in the Washington area" to read as follows "Sums made available for such a pilot demonstration center in the Washington area may be used for the construction of facilities, including future expansion, equipment, and such services as hospitalization, domiciliary care and rehabilitation training, including costs of board and room of trainees and other services essential to the program, as in the discretion of the Secretary are deemed desirable' This would provide the designated hospital 100% of the funds needed to construct and equip it as a Washington, D C, area pilot demonstration center This bill was referred to the Committee on Labor and Public Welfare

Overseas Medical Care for Federal Employees and Dependents

Representative Morrison (D, La), in H R 6141, has introduced the administration s proposal to extend the federal program for the care of all civilian overseas employees who are citizens of the United States and their dependents residing in areas outside the continental United States Under the present law enacted by Congress last year, only the foreign service employees of the Department of State were covered The Morrison proposal would extend this to all United States citizen government employees overseas The program would provide, without cost to the employee, free physical examinations in connection with government employment abroad Similarly, immunizations would be given if deemed necessary to protect the health of such employees and their dependents Travel necessary in obtaining medical care would be compensated for by the government Outpatient and hospital care could be given in facilities of the agency or other federal agencies, or through cooperative arrangements with foreign governments by purchase on a fee or contract basis for such services, or by any other appropriate means The agency would pay for the cost of care for the employees and would provide such services to dependents at charges prescribed by the President In a private hospital the charges for dependents would be the amount of actual charges up to $25 or a daily rate prescribed by the President, multiplied by the days hospitalized, whichever amount is greater The federal agencies would be given authority to establish first-aid stations, clinics, or dispensaries, and provide the services of physicians and other medical personnel at posts in overseas areas if there is sufficient personnel to warrant such actions and if local facilities are inadequate to meet local health needs of employees and their dependents and there are no adequate facilities maintained in such areas by any other agency

The Department of Defense would be given the right to provide all medical services for its civilian overseas employees and for their dependents subject to the availability of space, facilities, and capabilities of the medical staff This bill was referred to the Committee on Post Office and Civil Service

Chiropractors in Workmen's Compensation and in the Medical Service Corps of the Army

Senator Cooper (R Ky), by request, has introduced a measure S 1650, to amend the United States Employees Compensation Act to authorize the furnishing of chiropractic services to injured federal employees This measure was referred to the Committee on Labor and Public Welfare

Senator Case (R, S D), by request, has introduced a measure S 2072, which would establish a chiropractic section in the Medical Service Corps of the Army The chiropractors would be required to be graduates of an accredited school of chiropractic approved by the surgeon general This measure was referred to the Committee on Armed Services

Loans to Nonprofit Health Associations

Senator Humphrey (D, Minn), in S 1667, reintroduced a measure almost identical to his previous bill which would "assist voluntary nonprofit associations offering prepaid health service programs to secure necessary facilities and equipment through long term, interest-bearing loans' He would authorize the appropriation of 5 million dollars for the fiscal year ending June 30, 1957 A similar sum would be appropriated for the fiscal year ending June 30, 1958, and 10 million dollars for each of the next succeeding three years, at an interest rate not to exceed 2% per annum and could be amortized over a 25-year period Applicants must have at least 10% of the proposed loan The measure was referred to the Labor and Public Welfare Committee

Tax Deductions for Higher Education

Senator Magnuson (D , Wash) proposes, in S 1797, to amend the Internal Revenue Code to allow a taxpayer, in calculating his income tax, to deduct expenses paid in obtaining a higher education for his spouse or children The reductions would be made from his adjusted gross income Expenses were defined as

(A) tuition and fees required for matriculation and attendance at an institution of higher learning, or for fees required for enrollment in a course of instruction at an institution of higher learning

(B) books, supplies, and equipment required in a course of instruction at an institution of higher learning and

(C) travel and living expenses while away from home for the purpose of attending an institution of higher learning but only to the extent that such travel and living expenses incurred by any individual do not exceed $1,000 during any taxable year

This was referred to the Committee on Finance

Representatives McDonough (R , Calif), in H R 6459, and Collier (R , Ill), in H R 7566, have introduced identical measures which would permit a taxpayer, in calculating his income tax, to deduct from his gross income the expenses paid during the taxable year for the education of a dependent at a college or university and for his maintenance while pursuing such education

Representative Frelinghuysen (R , N J), in H R 7002, would amend the Internal Revenue Code to provide a 30% credit against the calculated individual income tax [not gross income] for tuition and fees paid during the year to an institution of higher education for 'such individual or of any other individual at a level above the twelfth grade" This measure is identical to H R 490 by Representative Thompson (D , N J), previously reported

Representative Byrne (R , Ill), in H R 7127, proposes "to increase the amount of the personal exemption to which a taxpayer is entitled with respect to a dependent who is a student and whose educational expenses are paid by such taxpayer" The exemption would be against the adjusted gross income not calculated income tax as in the Frelinghuysen bill Representative Byrnes measure would raise the taxpayer's exemption from $600, as provided in the present law, to $700 if the dependent is enrolled in the first eight grades, $800 of the dependent is enrolled in grades 9 through 12, and $900 if the dependent is enrolled in any level higher than the 12th grade All of the above measures were referred to the Ways and Means Committee

Salary and Organization Adjustments in the VA Department of Medicine and Surgery

Representative Long (D , La), in H R 6719, proposes the following grade salary structure for the department of medicine and surgery of the Veterans' Administration chief medical director, $19,500 annually, deputy chief medical director, $18,500 annually, assistant chief medical director, $17,500 annually, 15 deputy assistant chief medical directors, $16,500 annually, 15 directors of service or chiefs of a division, $16,500 annually director of nursing services, $12,690 annually, deputy director of nursing services, $10,320 annually, chief pharmacist, $12,690 annually, chief dietitian, $12,690 annually, chief physical therapist, $10,320 annually, and chief occupational therapist, $10,320 annually

The grades in the various services are as follows

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Chief grade $13,015 minimum to $14,200 maximum
Senior grade, $11,820 minimum to $12,700 maximum
Intermediate grade $10,300 minimum to $11,500 maximum
Full grade, $8,950 minimum to $9,950 maximum
Associate grade $7 650 minimum to $8,650 maximum

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Senior grade, $6,505 minimum to $7,795 maximum
Full grade, $5,440 minimum to $6,250 maximum
Associate grade, $4,730 minimum to $5,590 maximum
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The bill would reduce the allowance for diplomates of the specialty boards from 25% to 10% "provided, that in no event shall the pay plus the allowance authorized exceed $15,620 per annum'

Optometrists would be recognized in certain sections of the bill on the same level as physicians and dentists The above measure was referred to the Committee on Veterans' Affairs

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Representative Knutson (D., Minn.), in H. R. 6897, would authorize the "appointment of any doctor to a position in the V. A. Medical Service if he (1) has been lawfully admitted into the United States for permanent residence, (2) has filed a declaration of intention to become a citizen of the United States under section 334 (f) of the Immigration and Nationality Act, and (3) is otherwise qualified for such appointment This bill was referred to the Committee on Veterans Affairs

Chemical Additives in Food

Representative Harris (D, Ark), in H R 6747, and Senator Hill (D, Ala) for himself and Senators Smith (R, N J) and Sparkman (D, Ala), in S 1895, have introduced identical bills which would amend the 'Federal Food, Drug, and Cosmetic Act to prohibit the use in food of chemical additives which have not been adequately tested to establish their safety" Under this bill pretesting would be a responsibility of the manufacturer The bill provides for study and recommendations of an advisory committee of experts selected from the National Academy of Sciences An appeal mechanism would be established

Representative Fulton (R, Pa), in H R 7700, has introduced a similar measure but requires also in his measure that the chemical additive must not only be safe but serve a useful purpose to the consuming public

Representatives Delaney (D, N Y), in H R 7798, and Sullivan (D, Mo), in H R 7938, have introduced identical measures which are similar to H R 6747 mentioned above but have an additional requirement that the Secretary shall not approve for use in food any chemical additive found to induce cancer in man, or, after tests, found to induce cancer in animals " The Senate measure was referred to the Labor and Public Welfare Committee The House measures were referred to the Interstate and Foreign Commerce Committee

Distribution and Sale of Hazardous Substances for Household Use

Representative Curtis (R, Mo) proposes, in H R 7388, to regulate the interstate distribution and sale of packaging of hazardous substances intended for household use He would require the proper labeling of packages to minimize the dangers inherent in their use He defines toxic, poison, corrosive, irritant, radioactive, and inflammable, and places the responsibility for administering the program of regulation in the Department of Health, Education, and Welfare This measure was referred to the Committee on Interstate and Foreign Commerce

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COUNCIL ON NATIONAL DEFENSE

U S A F RESERVE HOSPITALS

The following report on U S A F Reserve hospitals has been approved for publication by the Committee on Military Medical Affairs, Council on National Defense, as an item of general interest to medical reserve personnel Frank W Barton, *Secretary*

To provide an increased mobilization medical capability, the U S A F Medical Service activated 10 general type reserve hospitals during April, 1957 These hospitals range in size from 250-bed to 1,000-bed capacities These Air Force Reserve units are located in various cities, as listed in the table

Location of Air Force Reserve Units

Medical Unit	Center	Location
616th U S A F Hospital	2347th ARFC	Long Beach Calif
635th U S A F Hospital	2610th ARC	New York City
637th U S A F Hospital	2692nd ARC	New Orleans
640th U S A F Hospital	2650th ARC	Chicago
622nd U S A F Hospital	2603rd ARC	Fort Worth Texas
619th U S A F Hospital	2609th ARC	Boston
620th U S A F Hospital	2608th ARC	Tampa Fla
628th U S.A F Hospital	2611th ARC	Baltimore
631st U S A F Hospital	2643rd ARC	San Francisco
625th U S A F Hospital	2658th ARC	Indianapolis

For training purposes, these units are one-bed hospitals which are located at various Air Reserve Centers or Air Reserve Flying Centers Training at these medical units will include an individual specialty program, designed to qualify personnel for duty performance in specific medical fields The range of grades is wide and will be appropriate to the responsibility involved These vary according to the size of the various units Individuals assigned to these units will be authorized 48 training periods plus a 15-day active duty tour during each year These medical units will provide refresher, continuation, and qualification training for officers and airmen who have had prior service as well as basic military and technical training for non-prior-service personnel under the six-month training program for enlistees between 17 and 18½ years

The missions of these newly activated units are to train Air Force Reserve medical units and individuals to a degree of readiness as rapidly as possible, thereby augmenting the capability of the Air Force Medical Service in the event of mobilization This is only one portion of the program of expanded training opportunities which is being developed by Continental Air Command, the major air command charged with the responsibility of administering all Air Force Reserve forces Other medical units which will offer training opportunities will soon appear in the program and will complete the medical support picture Individuals who feel that they may be eligible, and who desire to become part of this new Air Force Reserve training opportunity, may contact their nearest Air Reserve Center in order to obtain detailed information as may concern them specifically

MEDICINE AND THE LAW

OPINION SURVEY ON MEDICAL PROFESSIONAL LIABILITY

This is the 14th in a series of articles dealing with medical professional liability An editorial (page 360) and a chronological resumé (page 364) appeared in The Journal, *Feb 2 The preceding articles in this series have been published weekly in* The Journal *from Feb 9, 1957, to April 6, and since then intermittently* —Ed

Are professional liability claims against physicians becoming more frequent? Are medical society claims prevention programs effective? Is the cost of professional liability insurance excessive?

To obtain the opinions of physicians on these and many similar questions, the Law Department sent a questionnaire to a random sampling of 7,577 of the A M A 's members, excluding those in the armed forces A total of 5,341 questionnaires were completed and returned, accounting for 71 2% of the sampling

As a means of testing the reliability of the sample selection, the number of questionnaires returned from each state was compared with the number of physicians in the state A close correlation was found Over-all, the results of the survey reflect the opinions of almost 3 5% of the physicians, in each state, most of whom were engaged in active private practice The principal types of medical practice were fairly represented

The survey questions were prepared by the Law Department with the assistance of the Council on Medical Service and the Bureau of Medical Economic Research The pattern of the random sample was devised by the Bureau of Medical Economic Research in accordance with the techniques which have been used successfully in national public opinion polls It is hoped that the results of this survey together with the other material which has been developed as a result of our over-all study of medical professional liability will lead to a crystallization of the social, legal, and medical issues involved and will provide a sound basis upon which to formulate a national program of medical accident and claims prevention

It is evident in presenting this information that in a few instances it may lend comfort to some critics of the medical profession. However, in view of the need for isolating and dealing with the problems of medical professional liability, it is believed that a frank presentation of facts and opinions regarding the subject will ultimately produce beneficial results.

TABLE 1.—*An increasing tendency for patients to file claims of malpractice against physicians has been alleged. We do not know whether this is fact or fiction. Would you say that, in the last five years, the malpractice claims in your community have decreased remained the same increased no opinion*

	Decreased		Remained the Same		Increased		No Opinion		
	No	%	No	%	No	%	No	%	Total
Alabama	5	15.1	25	75.8	2	6.1	1	3.0	33
Arizona	5	16.1	12	38.7	11	35.5	3	9.7	31
Arkansas	2	4.9	20	48.8	11	26.8	8	19.5	41
California	29	4.9	117	20.0	350	59.7	90	15.4	586
Colorado	5	6.7	31	41.3	16	21.3	23	30.7	75
Connecticut	2	2.7	26	35.1	25	33.8	21	28.4	74
Delaware			11	47.8	7	30.4	5	21.8	23
Florida	7	5.7	41	33.6	44	36.1	30	24.6	122
Georgia	3	3.0	46	46.5	29	29.3	21	21.2	99
Idaho	2	6.5	15	48.4	13	41.9	1	3.2	31
Illinoi	15	4.4	133	39.2	63	18.6	128	37.8	339
Indiana	16	10.1	85	53.4	23	14.5	35	22.0	159
Iowa	5	4.9	60	58.2	31	30.1	7	6.8	103
Kansas	4	6.4	35	55.6	12	19.0	12	19.0	63
Kentucky	3	5.7	26	49.0	6	11.3	18	34.0	53
Louisiana	2	3.4	12	20.3	37	62.7	8	13.6	59
Maine	1	4.2	12	50.0	5	20.8	6	25.0	24
Maryland	2	2.7	25	33.3	30	40.0	18	24.0	75
Massachusetts	8	5.2	66	43.1	35	22.9	44	28.8	153
Michigan	14	6.8	101	49.3	29	14.1	61	29.8	205
Minnesota	8	6.7	57	47.9	24	20.2	30	25.2	119
Mississippi	2	4.2	28	59.6	14	29.8	3	6.4	47
Missouri	13	10.5	51	41.1	29	23.4	31	25.0	124
Montana	1	3.3	13	43.4	10	33.3	6	20.0	30
Nebraska	9	18.0	27	54.0	7	14.0	7	14.0	50
Nevada	2	33.3	1	16.7	2	33.3	1	16.7	6
New Hampshire	1	4.8	16	76.2	2	9.5	2	9.5	21
New Jersey	6	2.5	73	30.5	76	31.8	84	35.2	239
New Mexico	4	18.2	12	54.6	5	22.7	1	4.5	22
New York	9	1.8	98	19.1	234	45.7	171	33.4	512
North Carolina	8	8.2	57	58.2	11	11.2	22	22.4	98
North Dakota	1	5.0	13	65.0	2	10.0	4	20.0	20
Ohio	24	7.9	137	45.4	51	16.9	90	29.8	302
Oklahoma	3	5.0	32	53.4	20	33.3	5	8.3	60
Oregon	3	5.3	21	36.8	12	21.1	21	36.8	57
Pennsylvania	29	8.1	167	46.7	37	10.3	125	34.9	358
Rhode Island			5	25.0	10	50.0	5	25.0	20
South Carolina	1	3.0	22	66.7	6	18.2	4	12.1	33
South Dakota	1	10.0	7	70.0	2	20.0			10
Tennessee	2	2.4	44	52.4	26	30.9	12	14.3	84
Texas	13	5.5	116	48.7	38	16.0	71	29.8	238
Utah	1	5.9	2	11.7	13	76.5	1	5.9	17
Vermont	2	11.1	12	66.7	3	16.7	1	5.5	18
Virginia	2	3.2	27	42.8	19	30.2	15	23.8	63
Washington	3	2.8	32	30.2	42	39.6	29	27.4	106
West Virginia	5	9.3	36	66.7	10	18.5	3	5.5	54
Wisconsin	9	7.8	60	52.2	24	20.9	22	19.1	115
Wyoming	2	13.3	10	66.7	3	20.0			15
Dist. of Columbia			4	9.8	31	75.6	6	14.6	41
United States	294	5.6	2,079	39.8	1,542	29.5	1,312	25.1	5,227
Hawaii			1	5.0	18	90.0	1	5.0	20
Alaska			1	33.3	1	33.3	1	33.3	3
Grand total	294	5.6	2,081	39.7	1,561	29.7	1,314	25.0	5,250

Are Malpractice Claims Becoming More Frequent?

Many persons have been concerned over an alleged "alarming" increase in the frequency of medical professional liability claims. Although the individual physician may not be in a position to supply authoritative information as to whether there has been such an increase, it is interesting to note that, in response to this question, 39.7% of the respondents were of the opinion that the incidence of claims has not increased in the past five years, 29.7% were of the opinion that there had been an increase, 5.6% thought that there had been a decrease, and 25% had no opinion.

The statistics in this regard are not sufficiently conclusive upon which to base a finding nationally that claims are becoming more frequent. However, in California, Louisiana, New York, Rhode Island, Utah, the District of Columbia, and Hawaii there was a clear cut expression of opinion that professional liability claims have increased in frequency during the past five years (table 1).

It is realized that a more reliable means of determining the trend in the frequency of professional liability claims would be an analysis of the records of the insurance industry. Contacts have been and are being made with the key insurance companies writing this type of coverage in an effort to obtain such data.

Are Medical Society Professional Liability Programs Worthwhile?

The majority of the physicians in every state who responded expressed the opinion that the malpractice claims prevention programs of medical organizations are of "some" or "considerable" value (table 2). The percentage tabulations as to the usefulness of such programs are as follows: "a waste of time," 3.3%, "of doubtful value," 11.5%, "of some value," 35.9%, "of considerable value," 38.0%, "no opinion," 11.3%.

Which Society Should Conduct Claims Prevention Programs?

"If such claims prevention programs *are* instituted, which society or societies should conduct them?" Of those expressing an opinion, 45.2% believe that professional liability claims prevention programs should be conducted exclusively by county medical societies, and 28.3% are of the opinion that the state medical societies alone should conduct such programs. Twelve and one-half per cent believe that claims prevention programs should be conducted at both the state and county society levels. Only 4% preferred the specialty society exclusively. The remaining respondents (10%) named bar associations, universities, hospitals, and insurance companies, as well as state, county, and specialty societies, as proper participants in professional liability claims prevention programs (table 3).

What Subjects Should Be Stressed in Professional Liability Programs?

The question was asked in the survey as to what subjects, in the opinion of the respondent, should be stressed in a professional liability claims prevention program. The replies do not fall into any particular pattern which would make them susceptible to detailed tabulation, nor do the replies seem to vary significantly with geographical area. The following subjects were most frequently mentioned by respondents:

1. Educating the physicians in the subject of law as applied to the practice of medicine.
2. The promotion of better physician-patient relations, particularly with regard to fees.
3. Cautioning physicians to avoid criticizing other physicians or the treatment rendered by others.

TABLE 2.— *What is your opinion as to the usefulness of educational malpractice claims prevention programs by medical organizations—are they a waste of time of doubtful value of some value of considerable value no opinion*

	A Waste of Time		Of Doubtful Value		Of Some Value		Of Considerable Value		No Opinion		
	No	%	No	%	No	%	No	%	No	%	Total
Alabama	3	9.1	2	6.0	13	39.4	9	27.3	6	18.2	33
Arizona			2	6.4	11	35.5	15	48.4	3	9.7	31
Arkansas	1	2.5	4	10.0	16	40.0	11	27.5	8	20.0	40
California	16	2.7	46	7.8	196	33.4	303	51.5	27	4.6	588
Colorado	2	2.6	8	10.5	24	31.6	35	46.1	7	9.2	76
Connecticut	2	2.7	9	12.2	16	21.6	37	50.0	10	13.5	74
Delaware			3	13.0	8	34.8	10	43.5	2	8.7	23
Florida	3	2.5	12	9.8	47	38.5	53	43.5	7	5.7	122
Georgia	2	2.0	10	10.1	37	37.4	36	36.4	14	14.1	99
Idaho			2	6.4	11	35.5	15	48.4	3	9.7	31
Illinois	15	4.5	37	11.1	131	39.1	113	33.7	39	11.6	335
Indiana	3	1.9	33	20.9	62	39.2	43	27.2	17	10.8	158
Iowa	9	8.8	14	13.7	30	29.4	33	32.4	16	15.7	102
Kansas	1	1.6	8	12.7	17	27.0	24	38.1	13	20.6	63
Kentucky	1	1.9	7	13.2	20	37.7	18	34.0	7	13.2	53
Louisiana			8	13.6	20	33.9	22	37.3	9	15.2	59
Maine	2	8.3	1	4.2	8	33.3	11	45.9	2	8.3	24
Maryland	3	4.1	9	12.2	28	37.8	24	32.4	10	13.5	74
Massachusetts	4	2.6	19	12.2	68	43.9	42	27.1	22	14.2	155
Michigan	3	1.5	21	10.1	71	34.3	84	40.6	28	13.5	207
Minnesota	1	0.8	14	11.7	46	38.3	45	37.5	14	11.7	120
Mississippi	2	4.3	3	6.4	21	44.7	14	29.8	7	14.9	47
Missouri	7	5.6	17	13.6	46	36.8	33	26.4	22	17.6	125
Montana			2	6.7	11	36.7	14	46.6	3	10.0	30
Nebraska	2	4.0	8	16.0	18	36.0	19	38.0	3	6.0	50
Nevada					2	33.3	4	66.7			6
New Hampshire			2	9.5	6	28.6	12	57.1	1	4.8	21
New Jersey	7	2.9	28	11.7	89	37.2	85	35.6	30	12.6	239
New Mexico	1	4.4	2	8.7	9	39.1	6	26.1	5	21.7	23
New York	3	4.5	67	12.1	202	39.3	175	34.0	52	10.1	514
North Carolina	3	3.0	16	16.2	41	41.4	28	28.3	11	11.1	99
North Dakota			3	15.0	6	30.0	8	40.0	3	15.0	20
Ohio	8	2.7	45	14.9	110	36.4	106	35.1	33	10.9	302
Oklahoma	2	3.3	1	1.7	23	38.3	29	48.4	5	8.3	60
Oregon			9	15.8	15	26.3	27	47.4	6	10.5	57
Pennsylvania	17	4.7	48	13.3	121	33.6	129	35.9	45	12.5	360
Rhode Island	1	4.8	6	28.6	4	19.0	8	38.1	2	9.5	21
South Carolina			4	12.5	12	37.5	10	31.2	6	18.8	32
South Dakota	1	10.0	2	20.0	3	30.0	3	30.0	1	10.0	10
Tennessee	5	6.0	11	13.3	35	42.2	22	26.5	10	12.0	83
Texas	9	3.8	26	10.9	76	31.9	100	42.0	27	11.4	238
Utah			1	5.9	7	41.2	7	41.2	2	11.7	17
Vermont			3	16.7	7	38.9	6	33.3	2	11.1	18
Virginia	3	4.7	7	10.9	15	23.4	30	46.9	9	14.1	64
Washington	1	0.9	9	8.5	34	32.1	49	46.2	13	12.3	106
West Virginia	4	7.3	5	9.1	23	41.8	19	34.5	4	7.3	55
Wisconsin	3	2.6	12	10.6	42	37.2	41	36.3	15	13.3	113
Wyoming			1	6.7	2	13.3	8	53.3	4	26.7	15
Dist of Columbia	1	2.4	5	12.2	17	41.5	15	36.6	3	7.3	41
United States	171	3.3	607	11.6	1 877	35.9	1 990	38.0	588	11.2	5 233
Hawaii	1	5.0			9	45.0	7	35.0	3	15.0	20
Alaska					1	33.3	1	33.3	1	33.3	3
Grand total	172	3.3	607	11.5	1 887	35.9	1 998	38.0	592	11.3	5 256

4 Educating the physician with reference to his ethical responsibilities in medical practice

5 The maintenance of adequate records

TABLE 3 — *If such claims prevention programs are instituted, which society or societies should conduct them? (check one or more) County medical society State medical society A specialty society Other _______ specify*

	County Medical Society	State Medical Society	A Specialty Society	Other*	County and State Societies
Alabama	15	9		1	3
Arizona	13	6	1		5
Arkansas	9	19		1	7
California	339	67	14	11	79
Colorado	24	33	1	2	12
Connecticut	32	24	2	1	7
Delaware	10	7		1	3
Florida	58	21	3	4	22
Georgia	38	31	2	5	16
Idaho	12	11			7
Illinois	124	93	17	12	32
Indiana	63	57	7	3	18
Iowa	23	48	4	4	12
Kansas	22	29	3	1	7
Kentucky	25	17	4		5
Louisiana	19	18	3	3	10
Maine	12	6	2		
Maryland	18	36	5	4	7
Massachusetts	37	78	8	5	11
Michigan	93	52	7	4	24
Minnesota	47	39	2	2	17
Mississippi	14	17	3	1	9
Missouri	57	36	7	5	10
Montana	8	11			8
Nebraska	15	22	3	1	7
Nevada	3				2
New Hampshire	3	13	1	1	1
New Jersey	113	57	15	7	24
New Mexico	9	5		1	6
New York	278	79	30	4	57
North Carolina	36	40	4	1	16
North Dakota	1	9	3		3
Ohio	141	89	11	9	29
Oklahoma	19	22	2	2	7
Oregon	24	19		1	6
Pennsylvania	191	71	16	7	32
Rhode Island	4	12			3
South Carolina	20	7			3
South Dakota	3	4	1	1	
Tennessee	33	22	1	1	15
Texas	108	61	6	4	31
Utah	5	3	1	1	4
Vermont	4	10			2
Virginia	20	19	2	1	16
Washington	48	26	3	2	16
West Virginia	28	14	3	1	4
Wisconsin	41	41	6	4	11
Wyoming	3	10			1
Dist of Columbia	21	8	3		4
United States	2 283	1 428	206	119	631
Hawaii	15	3			2
Alaska		3			
Grand total	2 298	1 434	206	119	633

* Other includes 16 other unspecified 10 bar association 8 insurance company 64 A M A and 22 hospitals and universities

"Is a Claims Prevention Program Offered by Your County Society?"

Although 73 9% of the respondents (table 2) consider professional liability claims prevention programs as useful, 76 4% of all respondents reported that such a program is not offered by their county medical society (table 4)

In asking physicians whether their county society offered "a claims prevention program,' no attempt was made to define what constitutes such a program Consequently, members of the same county medical society might supply different answers To one member, periodic meetings devoted to the discussion of professional liability might constitute a claims prevention program Another member may consider nothing short of an active professional liability claims prevention committee to be a "program"

The physicians who reported that their county societies have claims prevention programs rated these programs as follows "harmful,' 1 3%, "ineffectual, 15 8%, "adequate,' 58 5%, "excellent," 17 6%, and no opinion or no answer, 6 8%

"Is a Claims Prevention Program Offered by Your State Society?"

This question was included as a means of testing the extent to which members are aware of their state professional liability programs

Although the executive secretaries of the following 17 state medical societies reported in connection with another phase of this professional liability survey that their states offered a claims prevention program, a majority of the physicians responding from their states stated that no program was offered California (52 2%), Connecticut (80 4%), Georgia (71 2%), Kansas (82 5%), Minnesota (60 7%), Missouri (95 9%), New Hampshire (65%), New Jersey (88 8%), New York (75 1%), North Carolina (75 3%), Oklahoma (60 8%), South Dakota (88 9%), Utah (56 2%), Virginia (77 6%), Washington (73 4%), West Virginia (87 2%), and Wyoming (71 4%) (table 5)

The answers to this question would indicate that the programs in effect in most of the states are either inadequate or not sufficiently publicized The expression of interest by physicians in having such programs suggests that greater emphasis in their initiation and implementation is needed at both the state and county level

Claims Review Committees

Regarding the value of medical society committees for the review of professional liability claims, those expressing an opinion (table 6) consider such programs "a waste of time," 2 1%, "of doubtful value,' 6 0%, "of some value,' 27 9%, "of considerable value," 52 5%, and no opinion, 11 5%

Which Society Should Conduct Claims Review Programs?

"If claims review programs *are* initiated, which society or societies should conduct them?' Of those expressing an opinion, 58 6% believe that professional liability claims review programs should be conducted exclusively by county medical societies, and 20 5% are of the opinion that the state societies alone should conduct them Eleven and one-half per cent believe that claims review programs should be conducted at both the state and county society levels The remaining 9 4% suggested that bar associations, insurance companies, specialty societies and the American Medical Association should conduct such programs (table 7)

"Is a Claims Review Program Offered by Your County Society?"

Of those responding to this question, 60 2% reported that their county medical society did not offer a claims review program (table 8) The 39 8% who reported that such a program was offered by their county medi

TABLE 1 — *Is a claims prevention program now offered by your county medical society? Yes No , If Yes, how do you rate this program? Harmful Ineffectual Adequate Excellent*

	Program Offered				Program Rating				
	Yes		No						
	Number	Per Cent	Number	Per Cent	Harmful	Ineffectual	Adequate	Excellent	No Opinion and No Answer
Alabama	3	9.7	28	90.3		1	2		
Arizona	6	19.4	25	80.6			4	2	
Arkansas	5	13.2	33	86.8		1	2	2	
California	403	73.4	140	26.6	3	61	220	98	21
Colorado	21	32.3	44	67.7	1	4	9	5	2
Connecticut	18	29.0	44	71.0		4	11	2	1
Delaware	1	5.3	18	94.7		1			
Florida	33	28.0	85	72.0		6	19	2	6
Georgia	16	17.4	76	82.6	1	2	17	4	2
Idaho	8	25.8	23	74.2			6	2	
Illinois	30	10.6	254	89.4	2	7	17	3	1
Indiana	12	8.2	135	91.8		3	7	2	
Iowa	11	10.8	91	89.2	1		9	1	
Kansas	7	11.7	53	88.3			5	1	1
Kentucky	8	15.7	43	84.3		1	5	1	1
Louisiana	14	28.6	35	71.4		5	7	2	
Maine	5	21.7	18	78.3		2	2	1	
Maryland	9	14.1	55	85.9		2	5	1	1
Massachusetts	8	6.0	125	94.0		1	4	3	
Michigan	26	13.7	164	86.3		5	18	1	2
Minnesota	22	20.6	85	79.4		1	13	3	5
Mississippi	6	13.0	40	87.0		3	2	1	
Missouri	7	6.0	109	94.0	1	1	4	1	
Montana	7	24.1	22	75.9		2	5		
Nebraska	11	23.4	36	76.6			8	3	
Nevada			5	100.0					
New Hampshire	2	10.5	17	89.5				2	
New Jersey	25	11.5	192	88.5		3	15	5	2
New Mexico	2	10.0	18	90.0			1	1	
New York	124	28.7	308	71.3	1	25	71	14	13
North Carolina	7	7.3	89	92.7			4	2	1
North Dakota			19	100.0					
Ohio	32	11.4	248	88.6	2	5	19	6	
Oklahoma	16	28.1	41	71.9		2	12	2	
Oregon	11	21.6	40	78.4			9	1	1
Pennsylvania	53	17.5	249	82.5	1	10	35	3	4
Rhode Island	5	27.8	13	72.2			3	2	
South Carolina	3	9.1	30	90.9			2	1	
South Dakota	1	10.0	9	90.0			1		
Tennessee	21	26.6	58	73.4	2	2	13	3	1
Texas	36	17.1	174	82.9		5	22	6	3
Utah	10	62.5	6	37.5			10		
Vermont			17	100.0					
Virginia	7	12.7	48	87.3			6	1	
Washington	34	34.3	65	65.7		7	19	3	5
West Virginia	10	18.5	44	81.5		2	7		1
Wisconsin	15	14.0	92	86.0		3	8	4	
Wyoming	1	7.1	13	92.9			1		
Dist of Columbia									
United States	1 112	23.7	3 582	76.3	15	177	649	197	74
Hawaii	5	26.3	14	73.7			4		1
Alaska			1	100.0					
Grand total	1 117	23.7	3 597	76.3	15 (1.8%)	177 (15.8%)	653 (58.5%)	197 (17.6%)	75 (6.8%)

TABLE 5.—*Is a claims prevention program now offered by your state society? Yes ...... No ...... If Yes above how do you rate this program? Harmful ...... Ineffectual ...... Adequate ...... Excellent ......”*

	Program Offered				Program Rating				
	Yes		No						
	Number	Per Cent	Number	Per Cent	Harmful	Ineffectual	Adequate	Excellent	No Opinion and No Answer
Alabama	3	10.7	25	89.3		1	1	1	
Arizona	6	20.7	23	79.3			4	2	
Arkansas	6	18.8	26	81.2		2	2	2	
California	197	47.8	215	52.2	3	48	100	23	23
Colorado	47	78.3	13	21.7		3	31	9	4
Connecticut	10	19.6	41	80.4		4	4		2
Delaware	5	23.8	16	76.2			3		2
Florida	19	19.6	78	80.4		5	11	1	2
Georgia	23	28.8	57	71.2		5	8	6	4
Idaho	16	55.2	13	44.8		5	8	2	1
Illinois	27	11.9	200	88.1		5	10	5	7
Indiana	24	19.5	99	80.5		4	15	2	3
Iowa	24	24.2	75	75.8	1	4	14	5	
Kansas	10	17.5	47	82.5		1	8	1	
Kentucky	12	27.3	32	72.7			7	1	4
Louisiana	16	39.0	25	61.0		3	10	2	1
Maine	3	15.8	16	84.2		2	1		
Maryland	12	21.4	44	78.6		1	6	2	3
Massachusetts	15	12.3	107	87.7		3	7	4	1
Michigan	16	10.9	131	89.1		6	7		3
Minnesota	35	39.3	54	60.7		10	16	2	7
Mississippi	11	26.8	30	73.2	1	2	4	1	3
Missouri	4	4.1	93	95.9		1	1	2	
Montana	17	63.0	10	37.0	1	6	7	1	2
Nebraska	15	36.6	26	63.4		4	7	2	2
Nevada			5	100.0					
New Hampshire	7	35.0	13	65.0		1	1	5	
New Jersey	20	11.2	159	88.8		6	7	2	5
New Mexico	2	11.1	16	88.9				1	1
New York	86	24.9	260	75.1	1	29	45	2	9
North Carolina	19	24.7	58	75.3		2	10		7
North Dakota	2	11.8	15	88.2			1		1
Ohio	16	7.8	188	92.2	1	5	7		3
Oklahoma	20	39.2	31	60.8		9	18	4	
Oregon	13	29.5	31	70.5		3	7	3	
Pennsylvania	32	14.0	196	86.0	1	5	17	4	5
Rhode Island	14	66.7	7	33.3		1	11	2	
South Carolina	6	19.4	25	80.6		1	4	1	
South Dakota	1	11.1	8	88.9		1			
Tennessee	10	15.2	56	84.8		2	5	1	2
Texas	60	34.1	116	65.9		13	33	11	3
Utah	7	43.8	9	56.2			6		1
Vermont	2	11.8	15	88.2		2			
Virginia	11	22.4	38	77.6			7	2	2
Washington	21	26.6	58	73.4		6	10	2	3
West Virginia	6	12.8	41	87.2		2	3	1	
Wisconsin	18	20.0	72	80.0		4	8	4	2
Wyoming	4	28.6	10	71.4			4		
Dist. of Columbia	21	60.0	14	40.0	1	2	12	2	4
United States	971	24.8	2 937	75.2	10 (1.0%)	213 (21.9%)	503 (51.8%)	123 (12.7%)	122 (12.6%)
Hawaii			20	100.0					
Alaska			3	100.0					
Grand total	971	24.7	2 960	75.3					

TABLE 6 – *Some medical organizations have created committees or other bodies before which claims are brought for an official review Do you believe that such a claims review program is a waste of time of doubtful value of some value of considerable value no opinion*

	A Waste of Time		Of Doubtful Value		Of Some Value		Of Considerable Value		No Opinion and No Answer		
	No	%	No	%	No	%	No	%	No	%	Total
Alabama			1	3.0	8	24.2	19	57.6	5	15.2	33
Arizona					10	31.3	20	62.5	2	6.2	32
Arkansas	1	2.4	2	4.9	15	36.6	17	41.5	6	14.6	41
California	10	1.7	19	3.2	129	21.8	404	68.2	30	5.1	592
Colorado	3	3.9	2	2.6	11	14.3	50	64.9	11	14.3	77
Connecticut			3	4.1	10	13.5	55	74.3	6	8.1	74
Delaware			1	4.4	7	30.4	11	47.8	4	17.4	23
Florida	5	4.1	1	0.8	39	31.7	74	60.2	4	3.2	123
Georgia	4	4.0	8	8.0	21	21.0	53	53.0	14	14.0	100
Idaho			2	6.4	7	22.6	22	71.0			31
Illinois	7	2.1	31	9.1	119	35.0	144	42.3	39	11.5	340
Indiana	4	2.5	15	9.4	54	33.7	53	33.1	34	21.3	160
Iowa	1	1.0	3	2.9	35	34.0	54	62.4	10	9.7	103
Kansas	4	6.3	3	4.7	23	35.9	27	42.2	7	10.9	64
Kentucky			1	1.9	17	32.1	29	54.7	6	11.3	53
Louisiana	1	1.7	6	10.2	16	27.1	29	49.1	7	11.9	59
Maine			2	8.3	5	20.9	15	62.5	2	8.3	24
Maryland	1	1.3	2	2.7	18	24.0	42	56.0	12	16.0	75
Massachusetts	3	1.9	14	9.0	33	21.3	77	49.7	28	18.1	155
Michigan	4	1.9	11	5.3	60	29.0	108	52.2	24	11.6	207
Minnesota	1	0.8	6	5.0	33	27.3	65	53.7	16	13.2	121
Mississippi	3	6.4	2	4.3	17	36.2	22	46.8	3	6.4	47
Missouri	3	2.4	11	8.8	39	31.2	52	41.6	20	16.0	125
Montana					8	26.7	20	66.6	2	6.7	30
Nebraska	1	2.0	2	4.0	11	22.0	30	60.0	6	12.0	50
Nevada					2	33.3	4	66.7			6
New Hampshire					2	9.5	17	81.0	2	9.5	21
New Jersey	5	2.1	15	6.2	77	32.1	117	48.8	26	10.8	240
New Mexico			2	8.7	6	26.1	13	56.5	2	8.7	23
New York	8	1.6	31	6.0	167	32.2	254	49.0	58	11.2	518
North Carolina	2	2.0	6	6.0	28	28.0	49	49.0	15	15.0	100
North Dakota			1	5.0	8	40.0	8	40.0	3	15.0	20
Ohio	4	1.3	26	8.5	89	29.3	147	48.4	38	12.5	304
Oklahoma	1	1.7	6	10.0	16	26.7	31	51.6	6	10.0	60
Oregon	1	1.8	3	5.3	10	17.5	38	66.6	5	8.8	57
Pennsylvania	8	2.2	26	7.2	113	31.2	167	46.1	48	13.3	362
Rhode Island	1	4.5			6	27.3	13	59.1	2	9.1	22
South Carolina	1	3.0	3	9.1	12	36.4	12	36.4	5	15.1	33
South Dakota			4	40.0	2	20.0	4	40.0			10
Tennessee	2	2.4	5	5.9	25	29.8	45	53.6	7	8.3	84
Texas	7	2.9	23	9.7	60	25.2	118	49.6	30	12.6	238
Utah	1	5.9					16	94.1			17
Vermont					4	22.2	12	66.7	2	11.1	18
Virginia	6	9.2	3	4.6	20	30.8	26	40.0	10	15.4	65
Washington	2	1.9	4	3.7	20	18.7	64	59.8	17	15.9	107
West Virginia	2	3.6	4	7.3	17	30.9	30	54.6	2	3.6	55
Wisconsin	2	1.7	7	6.0	29	25.0	53	45.7	25	21.6	116
Wyoming	1	6.7			4	26.6	9	60.0	1	6.7	15
Dist of Columbia	3	7.3	1	2.4	9	22.0	27	65.9	1	2.4	41
United States	113	2.1	318	6.0	1 471	27.9	2 766	52.5	603	11.5	5 271
Hawaii					4	20.0	13	65.0	3	15.0	20
Alaska							2	66.7	1	33.3	3
Grand total	113	2.1	318	6.0	1 475	27.9	2 781	52.5	607	11.5	5 294

cal society rated these programs as follows 'harmful,' 0 8% 'ineffectual,' 9 7%, "adequate," 58 3%, "excellent," 23 1%, and no opinion or no answer, 8 1%

"Is a Claims Review Program Offered by Your State Society?"

Numerous respondents answered that such a program was offered in states where state society representatives had previously indicated that such programs were not in effect On the other hand, more than a majority of the physicians responding in the following states said that no claims review program is offered by the state medical society whereas state society officials previously indicated the existence of such a program Arizona, California, Georgia, Kansas, Kentucky, Maryland, Massachusetts, Mississippi, Missouri, New Jersey, New York North Carolina, Pennsylvania, South Dakota, Tennessee, Virginia, Washington, West Virginia, and Wyoming (table 9) The conclusion seems warranted that there is a need for more publicity regarding claims review programs among state society members

Responsibility for Medical Negligence

The charge has been made that physicians believe that they should be immune from responsibility for injury resulting from negligent medical practice Ninety-five and one-tenth per cent of those responding to the question believe that physicians should not be immune from liability for a patient's injury resulting from the physician's negligent practice of medicine

Significantly, there was little variation in the opinions expressed by the respondents in the various states

Group Professional Liability Insurance

Eighty-five and nine-tenths per cent of those physicians responding to the question on group insurance coverage expressed the belief that making professional liability policies available on a group basis is a proper function of medical societies Of those who consider the offering of group professional liability insurance a proper medical society function, 30 9% believe that such insurance should be offered exclusively by county medical societies and 34 5% are of the opinion that the state societies alone should offer such coverage Eleven and three-tenths per cent believe that group insurance should be offered by both county and state societies The remainder of the respondents believe that professional liability on a group basis should be offered exclusively by specialty societies or by specialty and other medical societies concurrently

In the interest of a fair analysis of the answers to this question it should be pointed out that the term 'group insurance' was not defined on the questionnaire It is therefore quite probable that it was interpreted in a number of ways by those answering In any event the high percentage of affirmative answers indicates a desire on the part of those responding for a collective type of insurance program in preference to the purchasing of professional liability insurance on an individual basis

Professional Liability Insurance

On the basis of the survey, 92 3% of all physicians are covered by some form of professional liability insurance However, it would appear that in a number of states 1 out of 5, or 20% of physicians, are w professional liability insurance, as for example ı bama, Arkansas, Colorado, Delaware, Georgia, land, and Mississippi Ninety-two and three fifth cent of the physicians responding said they h difficulty in obtaining insurance, 6 6% reported professional liability insurance was "somewhat" cult to obtain, and 0 8% said "very' difficult (table

TABLE 7 — *If claims review programs are initiated, which ety or societies should conduct them? County medical sc State medical society A specialty society Other _______ (Check one or more) specify*

	County Medical Society	State Medical Society	A Specialty Society	Other*	Co and Soc
Alabama	20	8			[illegible]
Arizona	15	5	1		[illegible]
Arkansas	10	19		1	[illegible]
California	437	29	23	2	4
Colorado	16	42		1	[illegible]
Connecticut	39	16		1	1
Delaware	11	6			1
Florida	87	8	8		11
Georgia	56	16	5		11
Idaho	10	10			10
Illinois	185	51	19	6	24
Indiana	81	36	4		25
Iowa	27	54	8		13
Kansas	27	25			8
Kentucky	31	12	8		6
Louisiana	23	13	4		10
Maine	11	9	1		1
Maryland	24	25	8	1	8
Massachusetts	38	64	12	1	16
Michigan	132	26	9	2	18
Minnesota	53	41			18
Mississippi	21	15	1		9
Missouri	71	26	6	1	6
Montana	9	11			7
Nebraska	15	17	2		12
Nevada	2				4
New Hampshire	3	12	1		2
New Jersey	136	36	15	8	23
New Mexico	9	7			6
New York	353	40	34		41
North Carolina	49	34	2		6
North Dakota	7	6	3		1
Ohio	205	45	9		20
Oklahoma	22	28			5
Oregon	25	19	1		8
Pennsylvania	237	42	12	2	36
Rhode Island	5	9			5
South Carolina	19	9			2
South Dakota	2	6	1		1
Tennessee	51	14	8		10
Texas	144	35	5		20
Utah	6	5			5
Vermont	6	9			2
Virginia	28	12			12
Washington	60	14	8		14
West Virginia	33	9	8		6
Wisconsin	42	35	5		17
Wyoming	6	7			2
Dist of Columbia	24	8	2		2
United States	2 924	1 024	203	22	573
Hawaii	16	3			
Alaska		2			
Grand total	2 940	1 029	203	22	573

* Other includes 5 other unspecified 2 bar association 5 in ura company 6 A M A and 4 hospitals

Ninety-four and three-tenths per cent reported th they did not have to purchase other types of insuran from the underwriter or the agent in order to obta professional liability insurance Five and one tent per cent said they were required to purchase 'som of their other insurance, and 0 6% said that "all" their insurance had to be purchased from the san

TABLE 10 — *Do you carry professional liability insurance? Yes No*
Was this insurance difficult to obtain? No Somewhat Very

Insurance Coverage				Difficult to Obtain					
Yes		No		No		Somewhat		Very	
Number	Per Cent	Number	Per Cent	No	%	No	%	No	%
[illegible]	81 2	6	18 8	[illegible]	100 0				
31	96 9	1	3 1	22	71 0	8	25 8	1	3 2
33	80 5	8	19 5	30	93 8	2	6 2		
[illegible]	95 6	9	4 4	[illegible]	94 1	30	5 4	3	0 [illegible]
[illegible]	81 8	11	18 2	[illegible]	93 7	4	6 3		
[illegible]	90 [illegible]	7	9 [illegible]	[illegible]	82 1	10	14 9	2	8 0
[illegible]	[illegible]	1	[illegible]	[illegible]	94 4	1	5 6		
113	[illegible]	10	8 1	10[illegible]	90 3	9	8 0	2	1 7
7[illegible]	[illegible]	[illegible]	3 [illegible]	74	97 4	2	2 6		
[illegible]	96 8	1	3 2	2[illegible]	83 3	5	16 7		
311	[illegible]	[illegible]	8 0	271	88 [illegible]	27	8 7	8	2 6
[illegible]	[illegible]	6	3 [illegible]	[illegible]	98 7	2	1 3		
[illegible]	[illegible] 0	1	1 0	8[illegible]	92 7	[illegible]	6 3	1	1 0
[illegible]	[illegible] 1	[illegible]	[illegible]	[illegible]	96 6	2	3 4		
[illegible]	[illegible]	[illegible]	11 3	11	[illegible]	3	6 4		
	[illegible]	[illegible]	10 3	[illegible]	88	4	7 7	2	3 8
21	[illegible] 3		8 7	[illegible]	[illegible]	1	4.8		
[illegible]	81 1	11	18 [illegible]	[illegible]	8[illegible]	1	1 8		
1[illegible]	[illegible]	12	7 8	1[illegible]	[illegible]	10	7 1	1	0 7
19[illegible]	93 [illegible]	1[illegible]	6 3	174	91 1	14	7 3	3	1 6
113	93 4	8	6 6	[illegible]	88 3	13	11 7		
[illegible]	[illegible]	[illegible]	19 1	34	89 [illegible]	3	7 9	1	2 6
11[illegible]	91 2	11	8 8	10[illegible]	92 9	8	7 1		
[illegible]	[illegible]	3	10 0	[illegible]	92 0	2	8 0		
[illegible]	[illegible]	[illegible]	8 0	43	93 [illegible]	3	6 5		
[illegible]	100 0			6	100 0				
19	[illegible]	2	9 5	18	100 0				
[illegible]	[illegible] 6	8	3 1	210	94 3	11	4 8	[illegible]	0 9
	[illegible] 7	1	4 3	1[illegible]	86 4	3	13 6		
[illegible]	92 8	37	7 2	4[illegible]	96 0	17	3 6	2	0 4
[illegible]	86 9	13	13 1	73	84 9	13	15 1		
1[illegible]	[illegible]		10 0	17	94 4	1	5 6		
[illegible]	94 4	17	5 6	279	97 [illegible]	6	2 1		
[illegible]	[illegible]	4	6 7	54	96 4	2	3 6		
[illegible]	[illegible]	[illegible]	3 6	[illegible]	94 4	2	3 7	1	1 9
3[illegible]	[illegible]	31	8 6	307	93 [illegible]	20	6 1	2	0 6
[illegible]	[illegible]	2	9 1	18	90 0	[illegible]	10 0		
31	[illegible]	2	6 1	27	87 1	1	12 9		
9	90 0	1	10 0	6	[illegible]	3	33 3		
7[illegible]	91 6	7	8 4	67	88 2	8	10 5	1	1 3
2[illegible]0	92 8	17	7 2	[illegible]03	92 7	15	6 8	1	0 5
1[illegible]	88 2	2	11 8	11	73 3	4	26 7		
16	88 9	2	11 1	14	87 6	1	6 2	1	6 2
[illegible]7	[illegible]	7	10 9	[illegible]	91 [illegible]	4	7 0	1	1 8
101	94 4	6	5 6	93	91 9	8	8 1		
[illegible]	90 9	5	9 1	41	82 0	[illegible]	16 0	1	2.0
110	97 3	3	2 7	96	87 3	11	10 0	3	2.7
13	86 7	2	13 3	11	84 6	2	15 4		
[illegible]	[illegible] 1	2	4 9	37	97 4	1	2 6		
4 831	92 3	40[illegible]	7 7	4 449	92 6	316	6 6	39	
20	100 0			20	100 0				
2	66 7	1	33 3			2	100 0		
4 856	92 3	406	7 7	4 469	92 6	318	6 6	39	

underwriter in order to obtain professional liability coverage (table 11) These figures do not appear to substantiate the charge that professional liability insurance is frequently sold on a 'tie-on' basis with other casualty insurance

Table 11 — *Did you have to purchase other insurance from your company or agent in order to obtain professional liability insurance? No Some All In your opinion the cost of this professional liability insurance is reasonable excessive*

	Required to Purchase Other Insurance			Cost of Insurance			
				Reasonable		Excessive	
	No	Some	All	No	%	No	%
Alabama	25			15	60 0	10	40 0
Arizona	22	7	2	14	45 2	17	54 8
Arkansas	32	1		14	43 8	18	56 2
California	510	25	4	161	29 8	379	70 2
Colorado	59	4		17	27 9	44	72 1
Connecticut	56	9		40	64 5	22	35 5
Delaware	18			14	77 8	4	22 2
Florida	102	10	1	58	52 7	52	47 3
Georgia	73	1		27	36 0	48	64 0
Idaho	26	3		17	56 7	13	43 3
Illinois	281	14	3	223	73 4	81	26 6
Indiana	140		1	115	77 7	33	22 3
Iowa	92	2		75	78 1	21	21 9
Kansas	53	3	1	45	78 9	12	21 1
Kentucky	40		1	31	67 4	15	32 6
Louisiana	44	2	1	26	53 1	23	46 9
Maine	19	2		11	55 0	9	45 0
Maryland	59			32	57 1	24	42 9
Massachusetts	127	13		96	68 1	45	31 9
Michigan	171	16		147	79 5	38	20 5
Minnesota	94	5	1	34	32 7	70	67 3
Mississippi	37	1		9	23 7	29	76 3
Missouri	107	4	1	57	51 8	53	48 2
Montana	26	1		5	19 2	21	80 8
Nebraska	39	6		26	56 5	20	43 5
Nevada	6			2	33 3	4	66 7
New Hampshire	17			16	94 1	1	5 9
New Jersey	220	4		103	47 2	115	52 8
New Mexico	17	3		9	40 9	13	59 1
New York	460	3	1	212	45 8	251	54 2
North Carolina	83	10		25	30 9	56	69 1
North Dakota	16	1		10	55 6	8	44 4
Ohio	276	3		215	76 8	65	23 2
Oklahoma	54		2	39	72 2	15	27 8
Oregon	50	1		36	66 7	18	33 3
Pennsylvania	309	12	1	264	82 0	58	18 0
Rhode Island	15	3		14	70 0	6	30 0
South Carolina	29	2		18	58 1	13	41 9
South Dakota	5	3		2	25 0	6	75 0
Tennessee	67	6	1	25	33 8	49	66 2
Texas	212	6	1	164	74 9	55	25 1
Utah	14			4	26 7	11	73 3
Vermont	14	2		15	15 0		
Virginia	48	6		27	48 2	29	51 8
Washington	75	19	2	32	33 3	64	66 7
West Virginia	37	10	1	31	62 0	19	38 0
Wisconsin	95	10	2	61	56 5	47	43 5
Wyoming	11	1		4	30 8	9	69 2
Dist of Columbia	37			8	21 6	29	78 4
United States	4 434	241	27	2 646	56 4	2 042	43 6
Hawaii	19			8	42 1	11	57 9
Alaska	2					2	100 0
Grand total	4 496 (94 3%)	241 (5 1%)	27 (0 6%)	2 654	56 4	2 055	43 6

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Table 12 — *Have any professional liability* claims *ever been brought against you? Yes No*

	Yes		No	
	Number	Per Cent	Number	Per Cent
Alabama	3	9 1	30	90.9
Arizona	7	21 9	25	78 1
Arkansas	4	9 8	37	90.2
California	146	24 7	446	75 3
Colorado	11	14 3	66	85
Connecticut	3	4 1	71	96
Delaware			23	100 0
Florida	15	12 2	108	87 8
Georgia	14	14 0	86	86 0
Idaho	6	19 4	25	80 6
Illinois	47	13 8	293	86.2
Indiana	15	9 4	145	90 6
Iowa	12	11 7	91	88 3
Kansas	5	7 8	59	92 2
Kentucky	2	3 8	51	96 2
Louisiana	4	6 8	55	93 2
Maine	5	20 8	19	79 2
Maryland	4	5 3	71	94
Massachusetts	25	16 1	130	83 9
Michigan	28	13 5	179	86
Minnesota	23	19 0	98	81 0
Mississippi	3	6 4	44	93 6
Missouri	14	11 2	111	88 8
Montana	7	23 3	23	76
Nebraska	8	16 0	42	84 0
Nevada	1	16 7	5	83 3
New Hampshire	2	9 5	19	90
New Jersey	20	8 3	220	91 7
New Mexico	3	13 0	20	87 0
New York	107	20 7	411	79 3
North Carolina	11	11 0	89	89 0
North Dakota	3	15 0	17	85 0
Ohio	36	11 8	268	88 2
Oklahoma	7	11 7	53	88 3
Oregon	11	19 3	46	80 7
Pennsylvania	23	6 4	339	93 6
Rhode Island	5	22 7	17	77 3
South Carolina			33	100 0
South Dakota	2	20 0	8	80 0
Tennessee	12	14 3	72	85 7
Texas	24	10 1	214	89 9
Utah	1	5 9	16	94 1
Vermont	1	5 6	17	94 4
Virginia	7	10 8	58	89 2
Washington	24	22 4	83	77 6
West Virginia	9	16 4	46	83 6
Wisconsin	18	15 5	98	84 5
Wyoming	1	6 7	14	93 3
Dist of Columbia	8	19 5	33	80 5
United States	747	14 2	4 514	85 8
Hawaii	1	5 0	19	95 0
Alaska			3	100 0
Grand total	748	14 1	4 546	85 9

Those physicians who had experienced professional liability claims were requested, by a follow-up questionnaire, to submit detailed case histories regarding these claims An analysis of these claims, accompanied by appropriate statistical charts, will be published in this column in an early issue of The Journal

MEDICAL NEWS

CALIFORNIA

Oakes Foundation Laboratory—The Roscoe and Margaret Oakes Foundation has made a grant of $984,698 to build in Palo Alto the Roscoe and Margaret Oakes Laboratories of Radiology and Biophysics The foundation is a charitable organization established by the will of the late Mrs Roscoe F Oakes for the purpose, among others, of supporting medical research

The Oakes Laboratory will be located in the section of the new Medical Center connecting the Palo Alto–Stanford Hospitals and medical school buildings The building will be on the campus side of the center, with its own entrance appropriately designated It will have approximately 32,000 square feet of floor space The first floor will be given over to facilities for diagnostic roentgenology and related research The ground floor will be devoted to basic research in radiation biochemistry, radiobiology, biophysics, and experimental radiation therapy, and will house the linear accelerator, isotope laboratories, and radiographic motion picture facilities

CONNECTICUT

Dr Osborn Honored—At the recent annual meeting of the Massachusetts Public Health Association the association's Lemuel Shattuck medal was awarded to Dr Stanley H Osborn, commissioner of the Connecticut State Department of Health The Lemuel Shattuck award was established in 1950 by the Massachusetts Public Health Association to honor each year a resident of New England selected "for outstanding service in public health’ Dr Osborn, recipient of honorary degrees from Tufts College, doctor of science, and from Trinity College, doctor of public health, was appointed deputy commissioner of the Connecticut State Department of Public Health in 1920 and in two years became commissioner

Test Form for Child Eye Defects—A new test form to approach to the problems of finding child eye defects early has been adopted in Connecticut Eye specialists who form the Committee on Eye Care of the Connecticut State Medical Society have worked with the Connecticut State Department of Health and Connecticut State Department of Education in developing the standards of eye testing on which the form is based Dr Clement Clarke, New Haven, chairman of the committee, points out that the new test form will be more effective in meeting the statutory requirement for testing the vision of all children in the public schools every year The form records the results of the school screening test and the report of the eye examination The reverse side gives the standards of vision for children in different age groups The importance of cooperation by parents, teachers and school nurses is emphasized in connection with a check list of what to look for when considering the health of a child s eyes

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Personal—Dr Ralph M Waters received an honorary doctor of science degree at the 131st commencement of Western Reserve University, Cleveland A graduate of Western Reserve University School of Medicine 50 years ago, he has performed research at the University of Wisconsin, Madison, and now is a professor emeritus from that university He lives in Orlando

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Surgery Department Chairman—Dr John D Martin, clinical professor of surgery, Emory University School of Medicine, Atlanta, has been named chairman of the department of surgery Dr Martin will fill the position opened by the resignation of Dr John M Howard earlier this year, and his appointment will be effective Sept 1 He has been a member of the Emory faculty since 1930 Dr Martin is associate editor of *The American Surgeon* His special interest is in the treatment of burns He is also chief of surgical service in the Emory University Hospital At present he is a consultant in surgery for the Veterans Administration and the U S Army and serves as division surgeon of four railway companies Dr Martin joined the Emory faculty as an assistant in surgery in 1930 From 1931 to 1942 he was in charge of the surgical pathology laboratory at Grady Memorial Hospital In 1951 he became clinical professor, and chief of surgery in the Emory hospital

MASSACHUSETTS

New Infectious Disease Department—The New England Center Hospital, Boston, has announced the establishment of a new department of infectious
eases under the direction of Dr Louis Weinste
in addition to being named chief of the ne
senior physician at the hospital, has als
pointed professor of medicine at Tufts C
ical School Both the hospital and the m
are part of Boston's New England Medi
accept these appointments, Dr Weinste
as chief of the infectious diseases ser
Memorial of the Massachusetts Mer

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health Programs should be received at least three weeks before the date of meeting underwriter in order to obtain professional liability coverage (table 11) These figures do not appear to substantiate the charge that professional liability insurance is frequently sold on a 'tie-on' basis with other casualty insurance

TABLE 11 — *Did you have to purchase other insurance from your company or agent in order to obtain professional liability insurance? No Some All In your opinion the cost of this professional liability insurance is reasonable excessive*

	Required to Purchase Other Insurance			Cost of Insurance			
				Reasonable		Excessive	
	No	Some	All	No	%	No	%
Alabama	25			15	60.0	10	40.0
Arizona	22	7	2	14	45.2	17	54.8
Arkansas	32	1		14	43.8	18	56.2
California	510	28	4	161	29.8	379	70.2
Colorado	59	4		17	27.9	44	72.1
Connecticut	56	9		40	64.5	22	35.5
Delaware	18			14	77.8	4	22.2
Florida	102	10	1	58	52.7	52	47.3
Georgia	73	1		27	36.0	48	64.0
Idaho	26	3		17	56.7	13	43.3
Illinois	281	14	3	223	73.4	81	26.6
Indiana	146		1	115	77.7	33	22.3
Iowa	92	2		75	78.1	21	21.9
Kansas	53	3	1	45	78.9	12	21.1
Kentucky	46		1	31	67.4	15	32.6
Louisiana	44	2	1	26	53.1	23	46.9
Maine	19	2		11	55.0	9	45.0
Maryland	59			32	57.1	24	42.9
Massachusetts	127	13		96	68.1	45	31.9
Michigan	171	16		147	79.5	38	20.5
Minnesota	94	9	1	34	32.7	70	67.3
Mississippi	37	1		9	23.7	29	76.3
Missouri	107	4	1	57	51.8	53	48.2
Montana	26	1		5	19.2	21	80.8
Nebraska	39	6		26	56.5	20	43.5
Nevada	6			2	33.3	4	66.7
New Hampshire	19			16	94.1	1	5.9
New Jersey	220	4		103	47.2	115	52.8
New Mexico	19	3		9	40.9	13	59.1
New York	409	3	1	212	45.8	251	54.2
North Carolina	73	10		25	30.9	56	69.1
North Dakota	16	1		10	55.6	8	44.4
Ohio	276	3		215	76.8	65	23.2
Oklahoma	54		2	39	72.2	15	27.8
Oregon	50	1		30	66.7	18	33.3
Pennsylvania	309	12	1	264	82.0	58	18.0
Rhode Island	1	3		14	70.0	6	30.0
South Carolina	29	2		18	58.1	13	41.9
South Dakota	5	3		2	25.0	6	75.0
Tennessee	67	6	1	25	33.8	49	66.2
Texas	212	6	1	164	74.9	55	25.1
Utah	14			4	26.7	11	73.3
Vermont	14	2		15	100.0		
Virginia	48	6		27	48.2	29	51.8
Washington	[illegible]	19	2	32	33.3	64	66.7
West Virginia	37	10	1	31	62.0	19	38.0
Wisconsin	95	10	2	61	56.5	47	43.5
Wyoming	11	1		4	30.8	9	69.2
Dist of Columbia	87			8	21.6	29	78.4
United States	4,434	241	27	2,646	56.4	2,042	43.6
Hawaii	19			8	42.1	11	57.9
Alaska	2					2	100.0
Grand total	4,496 (94.3%)	241 (5.1%)	27 (0.6%)	2,654	56.4	2,055	43.6

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pretedmes of rising costs, it might be suspected, that any eve i reply as to whether the cost of a particular indicates) is reasonable' or "excessive" would be the a collective56.4% of all physicians responding to the to the purcicerning the cost of their professional lia- on an individu felt that the cost was 'reasonable'

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On the basis
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TABLE 12 — *Have any professional liability* claims *ever been brought against you? Yes No*

	Yes		No	
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in addition to being named chief of the ne
senior physician at the hospital, has als
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are part of Boston's New England Medi
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Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health Programs should be received at least three weeks before the date of meeting and as associate professor of medicine at Boston University School of Medicine The new service will include patient care, research, and teaching, and will begin on Sept 1

Scholarship for Medical Research —A James S Kemper Foundation scholarship for medical research has been awarded by the American College of Surgeons to Dr Stanley W Jacob, of Boston Dr Jacob, chief resident surgeon on the Harvard Surgical Service at Boston City hospital, will utilize his three-year grant for private research of histochemical and physiologic studies in renal transplantation He completed an 18-month Harvard research fellowship in surgery at Beth Israel Hospital in Boston before assuming his present position last year The scholarship grant under which Dr Jacob will study was established recently by the Kemper Foundation, incorporated in Illinois 15 years ago for philanthropic and educational purposes Originator and president of the foundation is James S Kemper, former U S Ambassador to Brazil and chairman of companies in the Kemper insurance group

MICHIGAN

Residencies in Pediatric Pathology —Residency positions are available in pediatric pathology and in hematology at the Children's Hospital of Michigan, Detroit The pathology department is included in the department of laboratories, under the direction of Dr Wolf W Zuelzer, and is associated with an active hematology clinic and research laboratories Clinical conferences and ward rounds are held regularly, and during the school year the hospital is the Pediatric Teaching Service of Wayne State University School of Medicine Positions are available for one year, starting any time Training is recognized by the American Boards of Pediatrics, Pathology and Radiology, and the Canadian Board of Pediatrics The annual stipend is $2,400, and room and board Address inquiries to Dr Jay Bernstein, Department of Pathology, Children's Hospital of Michigan, 5224 St Antoine St, Detroit 2, Mich

MINNESOTA

Society News —The officers of the Minnesota Psychiatric Society, a District Branch of the American Psychiatric Association, are as follows president, Dr Howard P Rome, president-elect, Dr Dale C meron, and secretary-treasurer, Dr Edward M Litin

Dr Huenekens Honored —Dr Edgar J Huenekens is the recipient of the F A Harrington award for outstanding service in the field of public health This honor was conferred at a dinner of the Upper Midwest
nilospital Conference A long-time member of the
preted mapolis Board of Public Welfare and medical
an eve i rof the Elizabeth Kenny Institute, Dr Huene-
indicates is ed over the Hennepin County Medical
a collective56 941-1942 and is presently serving as a
to the purcirene Minnesota State Board of Health In
on an individu ven the Distinguished Community Serv-
Prof sthe Community Chest and Council, and
al afreres have presented him with the
On the basis wl award for meritorious service as
are covered by as a citizen
surance However

Tapeworm in Some Cattle —The Minnesota Department of Health reports that in an epidemiological search recently conducted through the cooperation of federal meat inspectors in South St Paul, a meat packing company, and the Minnesota Department of Health, a public health veterinarian found and condemned 10 head of cattle infected with the cysticercus bovis organism, a tapeworm The veterinarian found the source to be a farmhand who infected the cattle Tapeworm eggs were found in a specimen submitted by the employee who did not use the modern sanitary facilities provided on the farm The department of health reports that he is now being treated and the barn is being properly disinfected

MISSOURI

Fall Clinical Conference —The 34th annual Fall Clinical Conference of the Kansas City Southwest Clinical Society will be held Sept 30-Oct 3 at the Municipal Auditorium, Kansas City Round table luncheons, clinical pathologic conference, and panel discussions will be presented Dr Paul Dudley White, president, International Society of Cardiology, will present the fifth Edward Holman Skinner Memorial Lecture, "Coronary Heart Disease in 1957" A symposium, "The Medical Effects of Radiation," will be moderated by Dr Eugene P Cronkite, head, division of experimental pathology, medical department, Brookhaven National Laboratories, and will include the following participants Robert L Corsbie, Ph D, director, Civil Effects Test Group, United States Atomic Energy Commission, Simon Kinsmen, Ph D, chief, Radiological Health Training Program, United States Public Health Service, and Dr Justin J Stein, director, Cancer Research Institute, University of California, Los Angeles A colored television program will feature surgical operative procedures and clinical demonstrations, televised over a closed circuit from the Municipal General Hospital to the Little Theater, Municipal Auditorium Scientific and technical exhibits and a program of entertainment are planned For information write, Kansas City Southwest Clinical Society, 3036 Gillham Road, Kansas City 8, Mo

NEW YORK

Division of Nuclear Medicine —The Long Island Jewish Hospital, Glen Oaks, has established a division of nuclear medicine which will use radioactive isotopes for research, diagnosis, and treatment of illness, it has been announced A unit of the new division is an isotope laboratory which cost $100,000 Dr Joseph Greenbaum, former chief of the isotope laboratory at the United States Naval Hospital, St Albans, will head the new division

Establish Chair in Pediatrics —Announcement of a new Frank L Babbott Chair in Pediatrics at the State University of New York Downstate Medical Center in Brooklyn has been made Now retired from medical practice, Dr Babbott was a member of the board of trustees of the Long Island College of Medicine, the predecessor of the Downstate Medical Center, for 20 years He was also first president of the Long Island College of Medicine Prior to this, he was an instructor in pediatrics at the Long Island College Hospital The first man to hold the Frank L Babbott Chair in Pediatrics will be Dr Richard L Day, who has been chairman of the department of pediatrics at the Downstate Medical Center since 1953 Dr Babbott holds L L D degrees from Amherst College and Brooklyn Polytechnic Institute, and has done graduate work in pediatrics at Johns Hopkins University, Baltimore, and Yale University, New Haven, Conn

Testing Center for Highway Accidents Research —The appointment of Dr William Haddon Jr as director of the Driver Research and Testing Center has been announced The center is a joint undertaking of the State Health Department and the Bureau of Motor Vehicles in which the bureau is providing the funds and the Health Department is providing the professional direction The center was established to conduct research into human factors involved in highway accidents In addition, it serves in an advisory capacity concerning licensing of individuals suffering from various medical conditions which might influence their ability to operate an automobile Dr Haddon was formerly a member of the research staff of the Harvard School of Public Health, Boston He served in the U S Air Force during World War II He succeeds Dr Donald L Toker, a surgeon with the U S Public Health Service, who has been acting director of the center since August, 1956

New York City

Personal —Dr Maximilian Silbermann, assistant clinical professor of neurology, College of Physicians and Surgeons, Columbia University, was elected as delegate to represent the American Neurological Association at the Fourth International Poliomyelitis Conference, in Geneva, Switzerland, from July 8-12 —Dr William T Strauss, formerly of Ciba Pharmaceutical Products, Inc, has joined Doherty, Clifford, Steers & Shenfield, Inc, as vice-president and director of the professional division He was previously medical director of Chilcott Laboratories and before that he was assistant medical director of Hoffmann La Roche

NORTH CAROLINA

Duke Medical Center —The combined facilities for medical and nursing teaching treatment and research at Duke University School of Medicine, Durham, henceforth will be known as the Duke University Medical Center, it has been announced The new name has been selected to provide an over-all designation for the many units that make up the medical portion of the Duke campus These units include the School of Medicine, School of Nursing, Duke Hospital with its outpatient department and private diagnostic clinics, and buildings such as the Elizabeth P Hanes Nurses Residence and the William Brown Bell Medical Research Building Each unit will retain its present name but will be considered part of the Medical Center in designation as well as fact Thus, the hospital mailing address, for example, will be Duke Hospital, Duke University Medical Center, Durham, N C

OHIO

Hospital News —The St Elizabeth Hospital of Youngstown, Ohio, Alumni Association has announced its annual Ex-Intern and Resident Day, the program for which will commence Sept 5 at the hospital The featured speaker for the occasion will be Dr Hugh Stephenson Jr, chairman, department of surgery, University of Missouri, Columbia All former interns and residents of St Elizabeth Hospital and all Ohio medical students are invited

GENERAL

Prevalence of Poliomyelitis —According to the Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States, its territories and possessions in the weeks ended as indicated

Area	July 7 1957		July 7 1956
	Paralytic Type	Total	Total
New England States			
Maine			
New Hampshire			
Vermont			2
Massachusetts		1	1
Rhode Island			
Connecticut			2
Middle Atlantic States			
New York		4	5
New Jersey			3
Pennsylvania			3
East North Central States			
Ohio		2	11
Indiana		2	10
Illinois		3	35
Michigan		6	4
Wisconsin	1	4	2
West North Central States			
Minnesota			1
Iowa		2	5
Missouri	1	3	6
North Dakota			2
South Dakota			
Nebraska		2	1
Kansas		1	2
South Atlantic States			
Delaware		1	1
Maryland			1
District of Columbia			
Virginia	1	2	1
West Virginia			1
North Carolina	1	6	6
South Carolina	4	5	3
Georgia	3	3	2
Florida			6
East South Central States			
Kentucky			9
Tennessee	3	19	1
Alabama		1	
Mississippi		2	12
West South Central States			
Arkansas	2	3	5
Louisiana	2	12	18
Oklahoma	2	5	10
Texas	24	45	49
Mountain States			
Montana			
Idaho		1	2
Wyoming			
Colorado		1	
New Mexico		1	
Arizona			
Utah		26	
Nevada	1		
Pacific States			
Washington			
Oregon		—	
California	5	156	
Territories and Possessions		(14 7%)	
Alaska			
Hawaii			
Puerto Rico	1		
Total	51		

Influenza Scattered Widely—The U S Health Department Morbidity and Mortality Weekly Report, dated July 19, says that the influenza outbreak that occurred recently in a youth conference group in Grinnell, Iowa, 'did not terminate when the delegates left to return to their respective homes As previously reported 15 of those in attendance became ill on the train and were hospitalized in Chicago Dr R E Teague, Kentucky Commissioner of Health, reports that about 30 returned to Lexington and Louisville on July 2 and that 8 had symptoms on arrival About 20 others became ill in the following week Dr John Mason, New Mexico Department of Public Health, states that three who returned to New Mexico developed the disease shortly after arrival One secondary case in the family of one of the cases has been found Dr S H Osborn, Connecticut Commissioner of Health, has reported two suspect cases who returned from Grinnell by automobile with seven other young people and two adults One became ill en route home on July 3 and the second case developed symptoms about a week later It was also stated that a young man from Rhode Island who traveled with the party had a mild type of illness on July 4 Dr Charlotte Silverman, Maryland State Department of Health, reports that a 16-year-old girl became ill on the train when returning to her home in Montgomery County Dr A L Marshall, Indiana State Board of Health, says that several persons in the State were ill after returning from Grinnell Dr A P McKee, University of Iowa, has isolated strains of virus from several throat washings taken in Grinnell, which are antigenically similar to Far East strains Dr S S Chapman, Kentucky State Department of Health, has reported similar findings on throat washings taken from persons who returned to that state Laboratory studies on the group in Chicago are still in progress according to Dr H J Shaughnessy Reports are not yet available for the cases in New Mexico, Maryland, Indiana and Connecticut

Dr A A Jenkins, Utah Department of Health, reports that 12 contacts of the group in Salt Lake City reported last week as having influenza have developed a similar type of illness A report of the laboratory findings in this outbreak indicates that a virus resembling the Far East strain was the etiologic agent

Information has been received that an influenza-like disease developed on a military installation in Texas following transfer of personnel from San Diego In the San Diego outbreak, 32 strains of influenza A virus were isolated by Dr C G Looslı, University of Chicago, from 50 throat washings He reports that 20 thus far have been shown to be closely related to the
nau
preted Japan/305/57 strain Hemagglutination inhibition
any eve 20 strains did not occur when A/Denver/1-57
indicates is t Lakes/1739/54 antisera were employed
a collective 56 Culver, California State Department of
to the purchaser, reports the isolation of a virus sero-
on an individu d to the Far East strain and has found
paired blood specimens from influ-
Prof al Fort Ord have shown diagnostic titer
On the basis ment-fixation tests carried out with
are covered by antigen
surance However

Dr H M Hardwicke, Missouri Department of Public Health and Welfare, has reported the occurrence of an unusual number of illnesses in Columbia, which are characterized by sudden onset, fever, muscle pains, dry cough, nausea, and loss of appetite Since there was considerable diversity of symptoms in different patients it was suspected that more than one type of infection might be present in the community It is estimated that there have been 200 to 300 cases, mostly in children, and that the peak of the epidemic has been reached

Dr W S Jordan, Western Reserve University, Cleveland, has reported the isolation of a second strain of the Far East influenza virus in Cleveland"

Fellowship Grants in Psychiatry—The American Psychiatric Association has announced the award of 19 Smith, Kline and French Foundation Fellowships in Psychiatry Thirteen of these will enable medical students to participate in psychiatric research or training programs this summer Two other student programs will start in the fall

In all, 34 undergraduates throughout the nation will benefit Their projects range from a study of the chemical functionings of the brain to an analysis of Seattle's high suicide rate The foundation has given the American Psychiatric Association a total of $90,000 for the three years, 1955 through 1957 The recent awards total $16,733 05 These fellowships are administered by a committee named by the association Applications for consideration in October must be received by the Fellowship Committee by Sept 16 Information may be obtained from the Fellowship Committee, Box 7929, Philadelphia, Pa The grants included the following

- Dr Ian Gregory, the Ontario Hospital London, Ont, Canada, a grant toward the expenses of a year of study to obtain a Master of Public Health Degree
- Dr Alexander P Dukay, chief of male service Ypsilanti State Hospital, Ypsilanti, Mich, to enable Dr Dukay to spend one month at the Boston Psychopathic Hospital this summer to study the organization of research activities there
- Vermont State Hospital, Waterbury, Vt, a grant to organize a regular monthly lectureship
- Eastern State Hospital, Medical Lake, Wash, a grant to help defray the costs of a guest-lectureship series in connection with the hospital s summer training program

National Medical Association Meeting—The 62nd convention of the National Medical Association will be held in Cleveland Aug 12-15, with headquarters at the Hotel Hollenden The presidential address will be given by Dr Theodore R M Howard, Chicago Guest speakers at the general sessions include Dr Charles Puestow, professor of surgery, University of Illinois College of Medicine, Chicago, "Management of Pancreatitis,' and Dr Charles W Mayo, Rochester, Minnesota, "The Question of Preservation of the Sphincters in Carcinoma of the Rectum and Rectosigmoid Area" At the general sessions the following panel discussions will be held 'What's New in Pediatrics, Medicine, Gynecology, and General Surgery," moderated by Dr Matthew Walker, Nashville, Tenn, "The Peptic Ulcer Problem,' moderated by Dr Martin R Sutler, Cleveland The Frederick W Stubbs Me morial Lecture, Nodules in the Breast" will be presented by Dr Samuel O Freedlander, director, department of surgery, Mount Sinai Hospital, Cleveland, Ohio A special round-table discussion is planned for Aug 14 with Dr William H Sinkler presiding Entertainment includes the presidential ball to be held Aug 15 A special ladies' program is planned For information write Dr John T Givens, Executive Secretary, National Medical Association, Inc, 1108 Church St, Norfolk 10, Va

FOREIGN

Congress for Cell Biology—The ninth International Congress for Cell Biology, presented under the auspices of the International Society for Cell Biology, will be held Aug 28 Sept 3, in St Andrews, Scotland The official headquarters for the congress will be Younger Hill About 200 papers are scheduled for presentation in English, French, and German The presidential address, '50 Years of Tissue Culture,' will be presented by P J Gaillard Special film sessions will supplement the plenary and section meetings Trade demonstrations of scientific instruments and apparatus are planned for Aug 31 and scientific exhibits will be on view A ladies' program has been arranged Entertainment will include motor tours to East Fife and through highlands to Blair Castle For information write Professor J F Danielli, Secretary-Treasurer, King s College, London, W C 2

Symposium on Hair Growth—The British Society for Research of Ageing will present a symposium on the Biology of Hair Growth at the Royal College of Surgeons, London, England, Aug 7-9 The program, under the chairmanship of Professor William Montagna, includes presentations by speakers from the United States, Germany, and England, including the following

- Histochemistry of the Hair Follicle, O Braun-Falco Mainz, Germany
- Electron Microscopy of the Hair Follicle, E H Mercer, London
- Electron Microscopy of the Melanocyte and the Spread of Pigment, M S C Birbeck, London
- Vascularity and Patterns of Growth of Hair Follicles, A Durward, Leeds, England
- Mitotic Activity, William S Bullough and Edna B Laurence London

A special topic of discussion, Aug 9, is "Factors Which Influence the Growth of Hair' Open discussions will follow the formal presentations A program of entertainment is planned including a subscription dinner, Aug 8 For information write Professor William Montagna, Department of Biology, Brown University, Providence, R I

CORRECTIONS

Liver Damage—In the item 'New Medical Journal" appearing in Foreign Letters (April 20, page 1554), the liver damage was induced by carbon tetrachloride and not by chloroform as stated

Doctors as Diplomats—An item appeared in the Organization Section of The Journal, July 13, page 1258, entitled "Doctors as Diplomats," stating that the Smith, Kline & French Laboratories, with the cooperation of the American Medical Association, would televise a 'March of Medicine' program, built around the activities of American physicians throughout the world, over the NBC network on Dec 3 during the A M A Clinical Session in Philadelphia These plans have been changed and there will be no further "March of Medicine' programs during 1957, but there will be two one-hour films televised during the first six months of 1958

EXAMINATIONS AND LICENSURE

BOARDS OF MEDICAL EXAMINERS

California *Written Examination* Los Angeles, Aug 19 22, Sacramento, Oct 21-24 *Oral Examination* Los Angeles, August 17, San Francisco, Nov 16 *Oral and Clinical for Foreign Graduates* Los Angeles, Aug 18, San Francisco, Nov 17 Sec, Dr Louis E Jones, 1020 N St, Sacramento 14

District of Columbia * *Reciprocity* Washington, Sept 9 *Examination* Washington, Nov 12-13 Deputy Director, Mr Paul Foley, 1740 Massachusetts Ave, N W, Washington, D C

Georgia *Examination* Atlanta, Oct 8-9 *Reciprocity* Atlanta, Oct 10 Sec, Mr Cecil L Clifton, 111 State Capitol, Atlanta 3

Minnesota * *Examination and Reciprocity* Minneapolis, Oct 15-17 Sec, Dr F H Magney, 230 Lowry Medical Arts Bldg, St Paul 2

Montana *Examination and Reciprocity* Helena, Oct 1-2 Sec, Dr Thomas L Hawkins, 555 Fuller Ave, Helena

New Hampshire *Examination and Reciprocity* Concord, Sept 11-13 Sec, Dr John S Wheeler 107 State House, Concord

Virginia *Reciprocity* Richmond, Dec 4 *Examination* Richmond, Dec 5-7 Address Office of the Secretary, 631 First St, S W, Roanoke

Alaska * On application in Anchorage and Juneau Sec, Dr W M Whitehead, 172 South Franklin St, Juneau

Guam *Subject to Call* Act Sec, Dr S F Provencher, Agana

Puerto Rico *Examination* San Juan September 4 Sec Mr Joaquin Mercado Cruz, Box 9156 Santurce

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Arkansas *Examination* Little Rock, Oct 7-8 Sec, Mr S Dellinger, Zoology Department University of Arkansas etteville

Colorado *Examination and Reciprocity* Denver, Sep 4-5 Sec, Dr Esther B Starks, 1459 Ogden St, Denver

District of Columbia *Examination* Washington, O 21-22 Deputy Director Mr Paul Foley, 1740 Massachu ts Ave N W, Washington, D C

Michigan *Reciprocity* Ann Arbor, Sept. 7 *Exam ation* Ar Arbor and Detroit Oct 11-12 Sec, Mrs Ann Baker Stevens T Mason Bldg, West Michigan Ave

Oklahoma *Examination* Oklahoma City, Sep Dr E F Lester, 813 Braniff Bldg, Oklahom

Rhode Island *Examination* Providence, Aug tor of Professional Regulation, Mr Thomas State Office Bldg, Providence

Wisconsin *Examination* Madison, Sept 20 Dec. 7 Sec., Mr William H Barber, 621

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*Basic Science Certificate required

GOVERNMENT SERVICES

AIR FORCE

Three Officers Receive Awards—Col John Paul Stapp, U S A F, M C, *Aero Medical Field Laboratory*, Holloman Air Force Base, N Mex, was presented with the Eric Liljencrantz award at the recent Aero Medical Association meeting in Denver The award, consisting of a plaque and honorarium, was given to Colonel Stapp for his achievements in the solution of problems of high-speed flight and acceleration

The late Dr Liljencrantz, whose memory the award perpetuates, was a reserve naval Medical Corps officer who lost his life in an aircraft accident in 1942 while conducting experiments with a new type of accelerometer The award was established by the Chas Pfizer & Company, Inc

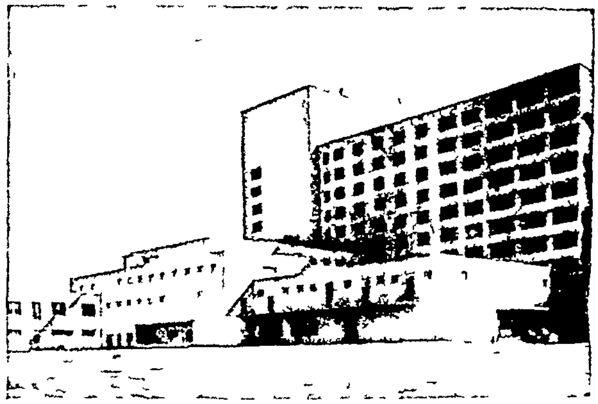
Major David G Simons, U S A F, M C, chief, Space Biology Branch, Aero Medical Field Laboratory, Holloman Air Force Base, N Mex, received the Arnold D Tuttle award at the recent Aero Medical Meeting in Denver for the best research report published in the *Journal of Aviation Medicine* in the past two years The winning article was 1954 Aero Medical Field Laboratory Balloon Flights, Physiological and Radiological Aspects' This award, which was established in 1952 by United Air Lines in memory of its late medical director consists of an appropriate plaque and an honorarium

Brig Gen Eugen G Reinartz U S A F, M C, retired, Carmel Valley, Calif, a past-president of the American Medical Association, received the Raymond F Longacre award This trophy is given annually for outstanding accomplishments in the psychological and psychiatric aspects of aviation medicine General Reinartz was commandant of the U S Air Force School of Aviation Medicine during World War II

Lackland—The First Air Force Teaching Hospital—The new 3700th U S A F Hospital at Lackland Air Force Base, San Antonio, Texas, was scheduled for completion in July, 1957 It is a 500-bed structure with support facilities for 1,000 beds It contains private and semiprivate rooms, wards, and clinical facilities, including x-ray and pathology department, anesthesia laboratory, cardiopulmonary function and diagnostic unit, renal unit, radioisotope laboratory, animal laboratory, surgical tissue bank, physiological training unit,
nai'diometric training unit, and center for the diagnosis,
preted'm and equipping of the partially sighted Pa-
any eve i rd, be able to communicate with nurses on a
indicates y is'mmunication system Bed speakers are
a collectiv56 provide piped-in radio programs, and a
to the purcirerhe system, is provided throughout the
on an individu' The hospital structure is nine stories
Prof st al
first Air Force teaching hospital, has
On the basis
ysicians of local and national impor-
are covered by
sultant staff, all of whom are diplo-
surance However

mates of their respective specialty boards These physicians are utilized fully in the teaching program The hospital is affiliated with the University of Texas—Medical Branch, and conducts joint programs with the university as well as with various local hospitals in the San Antonio area

Twenty-four rotating medical internships are offered beginning July 1 of each year The program is approved by the A M A Council on Medical Education and Hospitals The following standard teaching programs are regularly presented clinical pathological conferences, clinical roentgen conferences, ward rounds, teaching seminars, journal clubs and/or intern conferences Prerequisites for internship at this hospital are graduation from a class-A medical school, United States citizenship, and the acceptance of a commission as first lieutenant in the United States Air Force



New Air Force Hospital

Lackland Air Force Base Hospital offers residencies i general surgery, orthopedic surgery, radiology, internal medicine, general practice, and anesthesiology

ATOMIC ENERGY COMMISSION

Life Science Research Contracts—The award of 31 unclassified life science research contracts in medicine, biology, biophysics, and radiation instrumentation was announced June 21 by the U S Atomic Energy Commission The contracts were awarded to universities and private institutions as part of the commission's policy of fostering research and development in fields related to atomic energy as specified in the Atomic Energy Act of 1954, and as amended in 1956 Four of the awards are new projects one in medicine, two in biology, and one in biophysics Eleven awards for continuation of research are in medical sciences, 15 in biology, and one in radiation instrumentation

The new contract in medicine was awarded to Dr Barnes Woodhall, Duke University, Durham, N C, for study of the biology of brain tumors The largest individual award was made to Dr Jean K Weston, Parke, Davis & Company, Detroit, $80,000 for the study of factors elaborated by animal tissues which stimulate rate of regeneration of hematopoietic organs of animals exposed to total body irradiation with gamma rays

DEATHS

deForest, Walter Robbins ⊕ Hamilton, Ohio, born in Syracuse, N Y, Dec 10, 1909, Columbia University College of Physicians and Surgeons, New York City, 1937, specialist certified by the American Board of Preventive Medicine, entered the medical corps of the U S Army in 1940, served at Gorgas Hospital in the Canal Zone and in the European theater from 1943 to 1945, again, from 1947 to 1949, saw service with the Public Health Section of the military government in Germany, later named chief of the medical affairs and public welfare board Office of the U S High Command, Germany, in which capacity he served until February, 1951, attended the Potsdam Conference as staff surgeon, his final assignment, prior to his retirement from active duty in 1955, as lieutenant colonel, was as chief of preventive medicine at Fort Knox, Ky on retirement, accepted a position with the United Mine Workers of America's Welfare and Retirement Fund and served as deputy area medical administrator at Morgantown, W Va, in February, 1957, accepted the position of health officer for the city of Hamilton member of the West Virginia State Medical Association, died in the Mercy Hospital May 18, aged 47, of cerebral hemorrhage and hypertension

Trimble, Harold Guyon ⊕ Oakland, Calif born in Oakland Feb 24, 1896, University of California School of Medicine, San Francisco 1920, associate clinical professor of medicine at Stanford University School of Medicine in San Francisco awarded the fourth Varner–Jones memorial medal on the occasion of his lecture in London, past-president of the California Tuberculosis and Health Association and the American Trudeau Society, specialist certified by the American Board of Internal Medicine member of the American College of Chest Physicians fellow of the American College of Physicians consultant, diseases of the chest, Contra Costa County Health Department consultant, Alum Rock Sanatorium in San Jose, where he was a trustee, on the staffs of Providence, Alameda and Peralta hospitals was shot and killed May 13 aged 61

Fromm-Reichmann, Frieda, Rockville Md, born in Karlsruhe, Germany, Oct 23, 1889 Albertus Universitat Medizinische Fakultat, Konigsberg Prussia Germany, 1913, an associate member of the American Medical Association, member of the Medical Society of the District of Columbia, American Psychoanalytic Association, and American Psychopathological Association, fellow of the American Psychiatric Association, past-president of the Washington Psychoanalytic Association, past-chairman of the faculty of the Washington School of Psychiatry, in 1952 received the Adolf Meyer Memorial award for outstanding contributions in the field of psychiatry, joint editor of Progress in Psychotherapy", for many years associated with the Chestnut Lodge Sanitarium, where she died April 28, aged 67, of acute coronary thrombosis

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⊕ Indicates Member of the American Medical Association

Stinson, John Wesley ⊕ Pittsburgh, Jefferson Medical College of Philadelphia, 1921, veteran of World War I, past-president of the Pittsburgh Surgical Society, fellow of the American College of Surgeons and formerly a governor, for many years associated with Pittsburgh Hospital, on the staff of St Margaret's Hospital, formerly a fellow in surgery and assistant surgeon at the Mayo Clinic in Rochester, Minn, received an honorary M A degree from Colby College, Waterville, Maine in 1939, died May 28, aged 61, of coronary occlusion

Dugan, John Brooks, San Francisco Northwestern University Medical School, Chicago, 1947, member of the American Psychiatric Association, specialist certified by the American Board of Psychiatry and Neurology, formerly medical director of the Pinel Foundation Hospital and on the faculty of the University of Washington School of Medicine, both in Seattle, a lieutenant (jg) in the medical corps of the U S Naval Reserve from 1947 to 1949, died May 19, aged 32

Eaton, Joseph Withington ⊕ St Petersburg, Fla, McGill University Faculty of Medicine, Montreal, Canada 1935 member of the American Society of Anesthesiologists, served a residency at the Baroness Erlanger Hospital in Chattanooga Tenn and the Charity Hospital of Louisiana in New Orleans, at one time practiced in Manchester N H, where he was affiliated with Elliot and Sacred Heart hospitals, associated with Mound Park and St Anthony's hospitals, accidentally drowned April 23 aged 49

Adams, Mary F, Blooming Prairie Minn, Chicago College of Medicine and Surgery, 1916, died May 12, aged 66 of cerebral hemorrhage

Brown, William Wallace Wilmont, Minn, University of the South Medical Department, Sewanee, Tenn, 1900 Wisconsin College of Physicians and Surgeons, Milwaukee, 1905, died in the Worthington (Minn) Municipal Hospital April 4, aged 87

Brucker, Karl Barnard ⊕ Lansing, Mich, University of Michigan Homeopathic Medical School, Ann Arbor, 1909 member of the American Proctologic Society, died in St Lawrence Hospital May 20, aged 72, of dissecting aneurysm of the aorta

Bruun, Paul Edward Springfield, Mass Temple University School of Medicine, Philadelphia, 1918, died in the Springfield Hospital May 20 aged 64, of he disease

Butler, William Berkley, Baltimore, Un Michigan Medical School, Ann Arbor, 19 of the Medical and Chirurgical Faculty died in the National Institute of Hea Md, Feb 21, aged 59, of brain tumor

106
(14 7%)

Byers, Horace Wellington, Baltimore Maryland School of Medicine, Baltim May 8, aged 68

Campbell, Charles R, Cincinnati, Eclectic Medical Institute, Cincinnati, 1906, for many years commissioner of Hamilton County, served as county health officer and as member and chairman of the first county school board and county board of health, died May 18, aged 81, of heart disease

Canouse, Richard Eugene ⊕ West Covina Calif Temple University School of Medicine, Philadelphia, 1954, interned at Veterans Administration Hospital Long Beach, died May 7, aged 33

Caveness, Zebulan Marvin ⊕ Raleigh, N C University of North Carolina School of Medicine Chapel Hill, 1903, served on the staff of the Rex Hospital died May 14, aged 80, of heart disease

Cheatham, James Clifton ⊕ Wolfe City, Texas Barnes Medical College, St Louis, 1908 veteran of the Spanish-American War and World War I, past-president of the Hunt County Medical Society, died in the Becton Clinic and Hospital Greenville, May 16, aged 80 of duodenal ulcer with acute obstruction

Clenge, Albert B, Detroit, Indiana University School of Medicine Indianapolis 1910, for many years city physician, died April 15 aged 73

Cogan Sarah Edith Ives ⊕ Belmont Mass, Womans Medical College of Pennsylvania Philadelphia, 1898 specialist certified by the American Board of Ophthalmology, died in Cambridge April 26 aged 83, of rupture of aneurism of the iliac artery

Copley, Ernest Lee ⊕ Richmond, Va, Medical College of Virginia, Richmond, 1929 also an ordained minister, associated with Johnston-Willis and Stuart Circle hospitals, and the Retreat for the Sick and the Grace Hospital, died May 13, aged 67

Craft, Edgar Dee, Major, U S Army retired Los Angeles, Medical Department of Tulane University of Louisiana, New Orleans, 1905 service member of the American Medical Association, entered the medical corps of the U S Army in 1911, retired May 15 1917 for disability in line of duty, died Jan 21, aged 76 of carcinoma of the stomach with metastases to liver

Craig, Arthur D ⊕ Springfield, Mo, St Louis College of Physicians and Surgeons, 1896, died in the Springfield Baptist Hospital April 14 aged 87 of arteriosclerosis

Cram Albert Monroe ⊕ Bridgewater Vt, George Washington University School of Medicine Washington, D C, 1912, past-president of the Vermont State Medical Society, in 1931 member of the House of Delegates of the American Medical Association, associated with the Rutland (Vt) Hospital died May 9 aged 74 of coronary thrombosis

pretedm- **Charles M** ⊕ Bell Gardens, Calif Jenner
any ever r ollege, Chicago, 1902, member of the Illinois
indicates is l Society, served on the staff of the Nor-
collective56 ican Hospital in Chicago, died in Evans-
to the purcre h 9, aged 82, of coronary insufficiency
on an individu rombosis

Prof st al ore, Wauwatosa, Wis, George Wash-
v School of Medicine, Washington,
On the basis ved as vice-president of the Medical
are covered by
surance However

Woman's National Association, past-president of the Wisconsin Medical Woman's Society, died May 1 aged 72

Dalton, William Jack ⊕ Cincinnati, University of Cincinnati College of Medicine 1943, also a dentist, veteran of World War II, served on the faculty of the Ohio State University in Columbus, associated with Christ, Bethesda and Good Samaritan hospitals, died May 3, aged 38 of coronary occlusion

Davidian, Hagop, Philadelphia, George Washington University School of Medicine Washington, D C 1911, served on the staffs of various Veterans Administration hospitals, at one time on the staff of St Elizabeths Hospital in Washington D C, died May 15, aged 79

Dawson, Leon Ernest, Des Moines, Iowa, Creighton University School of Medicine, Omaha, 1914, an associate member of the American Medical Association, died in the Mercy Hospital May 21, aged 65 of carcinoma of the left lung

Denham, Harry Courtenay ⊕ Gloversville, N Y Syracuse University College of Medicine 1910 specialist certified by the American Board of Radiology, member of the Radiological Society of North America and the American College of Radiology, past-president of the Fulton County Medical Society, served on the staff of the Nathan Littauer Hospital, died in the Albany (N Y) Hospital May 2, aged 70

Parker, John Z ⊕ Pattonsburg, Mo, University Medical College of Kansas City, 1904, died in the Noll Memorial Hospital, Bethany, March 29, aged 78, of carcinoma of the prostate with metastases

Pearson, Robert Garfield, Palm Springs, Calif, University of Pennsylvania Department of Medicine, Philadelphia, 1908, an associate member of the American Medical Association, for many years practiced in Sacramento, where he was associated with the Mercy and Sutter hospitals, died April 27, aged 74

Pirkner, Ernest Herman, Lake Placid, N Y, Ernst-Moritz-Arndt Universitat Greifswald Medizinische Fakultat Greifswald, Prussia, Germany, 1895, an associate member of the American Medical Association, died May 22, aged 86

Quillen, Otis Lawrence ⊕ St Marys, W Va, College of Physicians and Surgeons, Baltimore, 1912, for many years county health officer, at one time superintendent of the West Virginia Training School, associated with St Joseph and Camden Clark Memorial hospitals in Parkersburg, died April 30, aged 70, of cancer

Rieser, Willy ⊕ New York City, University and Bellevue Hospital Medical College, New York City, 1899, on the staffs of the Lebanon and Wickersham hospitals died April 2 aged 83

Roberts, Daniel Thomas, West Point, Ky, University of Louisville (Ky) School of Medicine, 1922, member of the Kentucky State Medical Association and the American Academy of General Practice, served on the staff of the Hardin Memorial Hospital in Elizabethtown died April 8, aged 62

Roberts, Melvin D ✠ Hancock, Mich, University of Michigan Department of Medicine and Surgery, Ann Arbor, 1903, veteran of World Wars I and II, died March 8, aged 77, of myocardial failure and arteriosclerosis

Ryan, William Alward ✠ Milwaukee, Marquette University School of Medicine Milwaukee 1926 for many years on the faculty of his alma mater, veteran of World War II, associated with the Misericordia Hospital where he was president of the staff and St Joseph's Hospital died March 22 aged 57 of heart failure

Sawitz, William George Philadelphia Universitat Rostock Medizinische Fakultat Rostock Mecklenberg Germany 1920 professor of parasitology at Jefferson Medical College served as assistant in parasitology instructor and assistant professor of parasitology at Tulane University of New Orleans member of the American Society of Tropical Medicine author of "Medical Parasitology" died April 19 aged 63 of heart disease

Schwartz, Frank Jacob ✠ Spring Valley N Y Baltimore Medical College 1907, past-president of the Rockland County Medical Society, for many years member of the Spring Valley Village Board, associated with the Good Samaritan Hospital in Suffern died April 22 aged 71 of arteriosclerotic heart disease

Sellers, Charles Joseph ✠ Mount Moriah, Mo, American Medical College, St Louis, 1895, died in Bethany April 13 aged 85, of lobar pneumonia

Sepple, Charles V, Oceanside N Y, Chicago Medical School 1925, died Jan 31 aged 72 of circulatory failure and cachexia

Settlage, Paul Henry, Madison Wis, University of Wisconsin Medical School, Madison, 1946, associate professor of anatomy at his alma mater veteran of World War II, accidentally drowned in Lake Wingra April 20 aged 46 when his canoe capsized

Shannon, Edwin Raymond ✠ Waterloo, Iowa Chicago Homeopathic Medical College 1896 fellow of the American College of Surgeons on the staffs of St Francis Hospital and Schoitz Hospital, one of the organizers, honorary member and past-president of the staff Allen Memorial Hospital where he died March 23 aged 84, of arteriosclerotic heart disease with myocardial failure

Shelley Joseph Lafayette, Howe Texas University of Tennessee Medical Department, Nashville, 1898 died in Sherman April 21 aged 83 of a heart attack

Shepard, Marguerite Dunbar ✠ Hartford, Conn, New York University College of Medicine New York City, 1937, member of the American Trudeau Society, associated with Cedarcrest Sanatorium died in the Hartford Hospital April 29 aged 48 of acute bronchial asthma

Shepard, Ned D ✠ Dayton, Ohio, Ohio State University College of Medicine, Columbus, 1936, member of the American Academy of General Practice, served as treasurer of the Montgomery County Medical Society associated with Barney Convalescent Hospital, Good Samaritan Hospital, Miami Valley Hospital and St Elizabeth Hospital, where he died April 18, aged 46 of lymphosarcoma with metastasis

Sietsema, Ebel, Chicago, Ill, National Medical University, Chicago 1907, died in Arlington Heights, March 5 aged 75 of cerebral hemorrhage and arteriosclerosis

Utterback, Arnold ✠ West Terre Haute, Ind, University of Louisville (Ky) Medical Department 1912, died Feb 4 aged 71 of gastric hemorrhage and esophageal varices

Vigle, John Barry, Burnside Ky University of Louisville Medical Department, 1906 served on the staff of the Somerset (Ky) City Hospital died in Lexington March 24 aged 78 of heart disease

Wantoch, Joseph ✠ Carteret, N J, Detroit College of Medicine, 1904 served as a member of the medical board of the Rahway (N J) Hospital of which he was a founder, a founder and for many years associated with the Perth Amboy (N J) General Hospital, where he died April 19 aged 74, of coronary thrombosis

Wolff Herman Julius ✠ St Paul, University of Minnesota Medical School, Minneapolis, 1930, clinical associate professor of internal medicine at his alma mater, specialist certified by the American Board of Internal Medicine, fellow of the American College of Physicians, president elect of the Minnesota Pathological Society, served on the staff of the Miller Hospital where he died April 19, aged 50, of ventricular fibrillation endocarditis, and pericarditis

Wood William Walter, Jamestown N D, College of Physicians and Surgeons of Chicago School of Medicine of the University of Illinois 1906 fellow of the American College of Surgeons, for many years treasurer of the North Dakota State Medical Association associated with the Trinity and Jamestown hospitals, died in Fort Worth Texas, May 1 aged 77 of myelogenous leukemia

Wylie Charles B, Morgantown, W Va, Hering Medical College Chicago, 1903, an associate member of the American Medical Association, specialist certified by the American Board of Otolaryngology, life member of the American Academy of Ophthalmology and Otolaryngology, honorary member of the staffs of Monongalia General and Vincent Pallotti hospitals, died in the White Cross Hospital, Columbus Ohio, May 9, aged 93 of injuries received in a fall

Yauger, George William ✠ Dayton, Ohio, University of Cincinnati College of Medicine, 1936, veteran of World War II, served on the staff of the Miami Valley Hospital, died in the Veterans Administration Cent April 22 aged 51, of carcinoma of the scrotu

Young, Robert Ulrich, Tampa, Fla, Duke School of Medicine, Durham, N C, 1952 the Grady Memorial Hospital in Atlant a residency at the Georgia Baptist and T pal hospitals, associated with St Jos veteran of World War II, died April myocardial infarction and arteriosc thrombosis

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coagulabilica is seen in the presence of a deficiency of any of the coagulation factors. Spontaneous hemorrhages are seen even among patients in whom the normal coagulation factors are present but whose serum contains abnormal proteins that prevent the conversion of fibrinogen into fibrin or whose plasma exhibits a high fibrinolytic activity. There are only two factors common to all these disturbances of coagulation: decreased fibrin formation and a tendency to spontaneous hemorrhage. It might be concluded that a shortage of fibrin is responsible for purpura hypocoagulabilica. Comparing these pathological conditions with the normal situation, one arrives at the hypothesis that normal fibrin production contributes to the normal impermeability of the blood vessels for erythrocytes. The assumption that fibrin is formed continuously is supported by the observation that the proteins involved in coagulation are normally more intensively consumed by the body than other proteins. In addition, several investigators claim to have demonstrated that the coagulation factors (thrombin, convertin, heparin, and fibrinolysin) appear in circulating blood in an active phase.

Since no morphologic proof of this hypothesis was found in the literature, experiments were carried out to compare the morphology of the inner surface of rabbit aortas under conditions of normal coagulability with that obtained during decreased coagulability after the administration of bishydroxycoumarin (Dicumarol) or heparin. The experiments were made with the aid of the electron microscope. A comparison of aortic impressions made under conditions of normal and hypocoagulability revealed two points of discrepancy: 1. In all normal rabbits fibrils were seen lying on the endothelium, usually between two nuclei, perpendicular to the borderlines of endothelial cells. For a number of reasons it was unlikely that these fibrils were artifacts. Their form and size did not differ from those of fibrin fibers. The most important argument, however, for equating these filaments with fibrin is that they were found only in 4 of the 14 rabbits with a decreased coagulability, and then only sporadically. 2. In normal rabbits, most endothelial cell nuclei protruded into the lumen. In rabbits whose blood had a decreased clotting power, most of the nuclei were flat. There were no differences between the rabbits treated with bishydroxycoumarin and those treated with heparin. Probably the flattened appearance of the nuclei in hypocoagulability was the result of a swelling of the cytoplasm of the endothelial cells. These observations indicate the probability that normally coagulation contributes in at least two ways to the impermeability of endothelium for red blood cells: by the deposition of fibrin fibers and by influ-
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ung Cancer.—The mortality figures for
d those for cigarette consumption are
uously, whereas the total consumption
per capita is not on the increase. Ac-
therlands Central Bureau of Statistics,
co consumption per capita amounted
1924 and 2,282 Gm. in 1955. The number of cigarettes smoked per capita was 346 in 1924 and 1,092 in 1955. The number of deaths from lung cancer in men (women in parentheses) was 58 (23) in 1924 and 1,767 (180) in 1955. In 1955 the death rate from lung cancer per 1,000 men in the age group 45 to 74 years was 1,113. In May, 1954, the government set up an advisory committee which reported to the director-general of public health in March, 1956. In March, 1957, he decided to release the report for publication (*Nederl tijdschr geneesk* **101**:459, 1957). The commission concluded, on statistical grounds, that there is a connection between cigarette smoking and lung cancer. Other possible factors which were likewise studied, proved to be less probably a cause of lung cancer than smoking. For this reason the Minister of Social Affairs and Public Health urges steps to restrain young people from smoking heavily and at an early age.

NEW ZEALAND

Virus Research.—At a meeting of the Otago Medical School Research Society, in May, Drs. R. G. Webster and J. A. R. Miles presented the results of an attempt to classify the contagious pustular dermatitis (CPD) virus in the pox group. CPD virus causes lesions in sheep similar to those of pox-group viruses in their natural hosts. Also, it is of a similar size to viruses of that group and, when examined under the electron microscope, is seen to have a similar brick shape to those pox viruses that have been examined. On the other hand, it will not adapt to growth on the chorioallantoic membrane of the embryonated hen's egg and some previous investigations with the use of human convalescent serums and the complement fixation test failed to show a relation between CPD and vaccinia viruses. Webster and Miles investigated comparatively the strain of CPD virus used to immunize sheep, the Gillard strain of vaccinia, and the Moscow strain of ectromelia virus; they used the complement-fixation reaction, Gispen's double diffusion precipitation technique, and the neutralization test. Results showed that, in the complement-fixation test, cross fixation with CPD antigen was found only with concentrated serums against vaccinia and ectromelia, but such fixation occurred with antigens diluted to 1:256. The antigen titer with the homologous antiserum was 1:4,096.

In the double-diffusion experiments, vaccinia and ectromelia showed a common precipitation zone with CPD. The zone corresponds with zone 3 of vaccinia or ectromelia against vaccinia antiserum (Gispen's notation for the bands was used). In the neutralization tests, there was no significant cross neutralization between vaccinia and CPD, but CPD antiserum gave substantial neuralization against ectromelia virus. The reverse did not hold, but the ectromelia antiserum was very weak in neutralizing activity against the homologous virus, and it is, therefore, not surprising that it failed to show activity against a heterologous virus. Webster and Miles believe that these results indicate a substantial relation between CPD and recognized pox viruses and that this virus should be included in that group.

Psittacosis —Stocks of healthy birds may harbor psittacosis virus for long periods, but if they are exposed to overcrowding and adverse environmental conditions, as they often are when shipped between countries, many of them become sick and begin to shed the virus in their feces and many die With the idea of trying to discover something of the nature of this upset, F J Austin (*Proc Univ Otago M School* 35 7, 1957) performed some experiments in mice that were carrying psittacosis virus latently in the spleen The state of psittacosis carrier was induced in the mice by an intraperitoneal injection of 10^5 LD$_{50}$ (median lethal dose) of the MOH 154 strain of psittacosis, followed two days later by a subcutaneous injection of 1 mg of chlortetracycline By this means, at least 60% of the mice were carrying the virus in their spleens one month later when they were subjected to a number of treatments in an endeavor to upset the host-virus balance in favor of the latter The following treatments were used epinephrine, exercise (16 hours daily in a rotating drum), insulin, triple typhoid vaccine, cortisone, dinitrophenol histamine acid phosphate, pregnancy, x-radiation, hyaluronidase, mucin, and synthetic diets deficient in choline chloride, nicotinamide, pantothenic acid pyridoxine, riboflavin, or thiamin Apart from the nicotinamide deficient diet causing a large number of deaths in both carriers and controls, there were no deaths in the mice fed for one month on these diets Of the other treatments the only one that caused death in the carriers was cortisone (5 mg subcutaneously on two successive days) Of the carriers so treated, 56% died within 10 days and virus was isolated from them all, but it was also possible to isolate virus from some of the other 44% after one month There were no deaths in the controls

By repeating the experiment and killing two mice every second day, the virus level in the spleen was found to rise by 1 log unit in the 10 days after injection of cortisone No change was detected in the complement-fixing antibody level during this period Killed homologous virus was injected intravenously into some carriers with the idea that it might cause a temporary lowering of the antibody level, thus allowing the virus to break through the host's resistance, but it had no such effect It is likely that the carrier state is maintained by a critical antibody level and that the cortisone probably acts by lowering it to some degree and thus allowing the virus to multiply again in the spleen and spread to other organs

Maintenance Therapy of Patients Who Have Undergone Adrenalectomy —Woodruff and co-workers (*Australian & New Zealand J Surg* 26 297, 1957) reported on the maintenance therapy of patients who have undergone adrenalectomy because of disseminated cancer of the breast From a study carried on for over a year, they concluded that neither cortisone nor fludrocortisone acetate alone provides adequate steroid replacement in such patients cortisone because its mineralocorticoid action is insufficient in comparison with its glucocorticoid action and fludrocortisone because the converse is true By using both these steroids, a proper balance can be achieved The dosage recommended is as follows For the first adrenalectomy (combined or not with oophorectomy)—no corticoid replacement but with the patient under careful supervision during the postoperative period For the second adrenalectomy—0 1 mg of fludrocortisone and 20 mg of cortisone on the evening before the operation, 0 4 mg and 80 mg, respectively, in divided doses on the day of the operation, 0 2 mg and 80 mg, respectively, on the second postoperative day, 0 2 mg and 40 mg, respectively, on the third postoperative day, and 0 2 mg and 30 mg, respectively, from the fourth day on Slight readjustment of this dosage may be required as determined by the clinical state of the patient and by periodical estimations of the sodium-potassium ratio in 24-hour collections of urine and of the fasting blood sugar

If, at the time of the first adrenalectomy, it is suspected that the patient has adrenocortical metastases, which have resulted in impaired cortical function, it is advisable to give 0 2 mg of fludrocortisone and 30 to 40 mg of cortisone from the day of the first operation because of the risk of producing acute adrenocortical deficiency if the gland removed happens to contain most of the patient's functioning cortical tissue After the second adrenalectomy, the dosage is changed to conform to the schedule discribed above

Retropubic Repair of Urethra —Complete rupture or rupture-dislocation of the deep urethra is uncommon and often associated with multiple injuries Always, except in the case of missile injuries, it is associated with some type of fracture of the pelvis Conventional treatment consists of secondary repair of these injuries treated primarily by the traditional method of catheter splintage Dr W R Carswell (*Australian & New Zealand J Surg* 26 308, 1957) found that treatment by the standard method is limited and unsatisfactory and has successfully performed primary repair by the retropubic route One difficulty of primary repair is elimination of the gap which may be 3 in between the ends of the urethra Catheter splintage, on retropubic examination of the pelvis, does not allow accurate apposition of the two ends The dislocated proximal urethra, prostate, and bladder may be found floating on an extraperitioneal collection of blood and urine or, if this is small, will be found grossly displaced upward and backward, with the bladder and prostate acutely anteverted Other difficulties are prevention of infection, extravasation, and persisting dead space due to failure to restore the normal structure The retropubic primary reconstruction of the urethra involves (1) a skin-crease incision across the lower part of the abdomen, two finger widths above the pubis, dividing both rectus muscles and splitting the oblique muscles after ligature of both deep epigastric arteries, (2) exposure and hemastasis by packin
ligature aided by the light of a cystoscope, (
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A British vaccine has been developed that, it is believed, will protect against the new Asian influenza caused by a virus previously unknown It must be tested before large-scale production can begin, and it will be injected into volunteers, including physicians and medical students It was prepared by Dr F Himmelweit and his staff at the Wright-Fleming Institute Specimens of the new virus were flown from the Far East to the World Influenza Center in London Dr Himmelweit said We hope to have supplies of vaccine ready for use if outbreaks of the new influenza should occur in this country in the winter

THE LEISURE CORNER

MOUNTAIN CLIMBING

Nothing is more refreshing than to obtain a glimpse of nature first hand The more nature tries to conceal some aspect of herself, the more curious most of us become What, you may ask, is the lure that draws about a million people each year out of a comfortable way of life to face discomfort and danger, so that they may laboriously climb a few hundred or a thousand feet up the side of a mountain? The uncompromising fact is that danger itself attracts few people, actually, most are repelled by it Yet the persons who enjoy climbing mountains experience the same exhilaration that physicians do after overcoming a difficult medical or surgical problem

The attitude of mountain climbers toward the pastime has undergone a number of curious changes Ancient peoples, for instance, looked on mountains with indifference Throughout the Middle Ages mountains were regarded with fear and terror, for centuries, no one ventured to climb even their lowest peaks During the past century, however, men have lost their fear and have discovered courage and ambition to climb mountains Today, mountain climbing is regarded neither as a daring, dangerous adventure nor as a unique opportunity for exploration For millions of people the world over mountain climbing merely provides one of the hardier forms of outdoor sports

More than 250,000 mountain climbers are presently enrolled in the Alpine clubs of Europe alone Participants do not subscribe to a 'take-it-easy' philosophy Virtually all of them do some climbing every season, while thousands regularly assault the most difficult peaks A generation ago, climbing the Matterhorn or Mont Blanc made front-page news, now, at least 100 climbers attain the ultimate peaks of each of these mountains every season

Switzerland attracts thousands of mountain climbers from all parts of the world because of the Alps It is not uncommon for hotels to be built with infinite pain in altitudes well over 10,000 ft to accommodate such guests So great has the rush been to the mountains that extremely modest huts and cow barns are used to shelter the overflow of enthusiastic mountain climbers American mountains offer an irresistible appeal to mountain climbers Innumerable virgin peaks in the Far West are yet to be explored

Mountain climbing may be divided into two general classes—low climbing and high climbing, with the dividing line, or, more accurately, the elevation, that separates the two classes placed at 10,000 ft Mountains of the so-called low class include the White Mountains, the Adirondacks, and the ranges in the Carolinas Here, mountain activity will appeal to the run-of-the mill summer visitor, with no serious dangers presented

In high mountain climbing, clothes and equipment are of vital importance Faulty clothes and incorrect equipment not only are a serious inconvenience but can indeed cause unnecessary suffering, as well as loss of life A proper climbing suit is made of special cloth, warm for its weight, and waterproof The fabric must be strong enough to avoid tearing when stretched across jagged rocks The shape of the suit is unimportant as long as it permits free movement. It should have pockets large enough to hold various supplies, since both hands are required almost continuously for climbing The coat should be cut in such a way that it can be tightly buttoned about the neck, should the occasion demand, the collar can be turned up to protect the ears A special form of mountain boot is available with stout upper parts, heavy soles, and nails or cleats for snow and ice climbing Shoes designed for city wear would fall apart quickly under the stress of climbing Heavy woolen socks should be worn to guard against freezing The hat should fit the head snugly enough to defy a hazardous storm and should have folds that can be turned down over the ears Many amateur climbers venture forth in sartorially trim sport suits and shoes, often to return to their base of operations practically barefoot, with the seats of their trousers attached to jagged rocks as testimony to improper preparation for mountain climbing

An Alpine scarf is a useful article of dress for this type of adventure It should be about 6 ft long and consist of heavy, warm material A scarf has several functions in cold weather, it makes a good comforter, with a few skillful turns, it can serve as a warm head protector, when wound around the body, it supplements a sweater, and, when not required for any of these purposes, it may be wound around the waist as a belt

The provisions carried by the mountain climber depend strictly on his individual preferences and tastes Certainly, no specific menu is suitable for all climbers In general, the dry air found at high altitudes will frequently cause intense thirst Under these circumstances, only tea and coffee are recommended as suitable thirst-quencers Some guides carry wine and liquor, but the effect of alcohol under unusual atmospheric conditions at high altitudes is likely to be adverse

The impact of bright sunlight on great expanses of snow and ice makes snow-blindness a real threat To circumvent this, many types of glasses have been designed for climbers Another form of hazard comes as sunburn This can be avoided by painting the face with an appropriate anti-sunburn preparation, utilizing soot or charcoal as a base Although the appearance of the climber may be somewhat startling, the face will be protected from the sun's rays

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Care of Tuberculous Patients—An article by Dr Sven Lofgren in *Nordisk medicin* for April 11 shows how great are the changes taking place in the care of tuberculous patients Toward the end of 1956, only 4,600 of the 7,385 beds for such patients in Sweden were occupied by the tuberculous, 38% were empty or occupied by nontuberculous patients Several sanatoriums are now using many of their beds for patients with chronic diseases, tuberculous or otherwise With the near prospect of tuberculosis ceasing to be a widespread and serious disease, many young physicians are reluctant to specialize in this subject Many junior staff appointments in institutions for the tuberculous are therefore vacant In 25 of Sweden's 40 sanatoriums, one or more such positions are vacant A system of readjustment is being put into force with the closing of many sanatoriums, whose location had entailed more or less effective isolation from other hospitals The work of about 25 such isolated sanatoriums is now being taken over by pulmonary disease departments of general hospitals An article in the same issue by Dr Gunnar Dahlstrom shows how great has been the shift from one type of operation to another in the treatment of pulmonary tuberculosis In the period 1948 to 1955, the number of intrapleural pneumothorax inductions fell from 171 to 39 In the same period there was a fall in the number of cauterizations of pleural adhesions from 131 to 29 The number of cases of extrapleural pneumothorax fell from 24 to 11 and the number of thoracoplasties from 62 to 43 The greatest change in the other direction concerns lung resection, which was undertaken only in one patient in 1948, whereas 139 resections were performed in 1955 Dahlstrom has made follow-up examinations of the 133 patients on whom thoracoplasties and the 260 on whom resections were performed in 1953 and 1954 Nearly half these patients were over the age of 35 years—proof of the current upward age shift of pulmonary tuberculosis

UNITED KINGDOM

Agranulocytosis After Tranquilizer—An inquest was held after a 43-year-old woman had died of agranulocytosis after treatment in a mental hospital with pacatal (Pecazine), a tranquilizer The coroner stated that this drug, freely obtained from drugstores, could damage the bone marrow In his opinion it should be given only to patients who are psychotic, and only when other forms of treatment have failed A pathologist testified that blood tests made during treatment gave a false sense of security, since effects on the marrow could appear suddenly Because so [illegible] about the drug, it should not be used [illegible] indicates [illegible] The dosage given to this patient [illegible] and there was no reflection on the [illegible] to the [illegible] on an [illegible]

Prof[illegible] [illegible]ed—The Minister of Health has de[illegible] $3,080 from the remuneration of a [illegible]ches of regulations This was one [illegible]nalties imposed on a physician by the Minister From June, 1955, to March 1956, the physician issued prescriptions to the value of $744 to patients not in the National Health Service or whose names could not be deciphered on the prescription forms Although, in some cases, the forms were issued by his partners, the physician was held responsible He attributed the breaches to carelessness and not wilfull transgression

On the basis [illegible] are covered by [illegible] surance However [illegible]

Physicians to Give Evidence to Commission—The British Medical Association will give evidence to the Royal Commission on remuneration to physicians, but the dispute with the government is not ended Dr Solomon Wand, chairman of the British Medical Association council, has called it an armed truce The quarrel with the government is over rejection of a claim for a pay increase of 24% The decision to give evidence should not be regarded as a sign of weakness If this dispute is not resolved in an acceptable way, vigorous action may still be taken A motion that all future negotiations on remuneration should be conducted by the council on behalf of the profession as a whole was carried Hitherto, separate committees have acted on behalf of the consultants and the family physicians The decision to give evidence to the commission was made conditional An amendment was carried to the effect that evidence should be given, with the understanding that it not show prejudice in favor of the profession's right to press for fulfillment of the government's moral obligations This could be interpreted as action in the courts to test the validity of the Spens report The physicians claim that this report entitles them to be reimbursed for the fall in the value of money since 1939 The government disagrees

Asian Influenza—Sir Macfarlane Burnet, the Australian authority on virus diseases, said, in London, that he thought the new Asian influenza would be dominant for the next 5 to 10 years and would spread over the world History suggests that every 5 to 10 years the influenza virus changes its character It did so in 1918, 1929 probably in 1935, and in 1946 1947 Sir Macfarlane's own laboratory vaccinated him against the new virus Australian laboratories expect to have commercial quantities of the vaccine available in readiness for the coming Australian winter As it is impracticable to vaccinate an entire population, in Australia the vaccine will be used for customs officials, nurses on hospital staffs, and others who contact travelers

A British vaccine has been developed that, it is believed will protect against the new Asian influenza caused by a virus previously unknown It must be tested before large-scale production can begin and it will be injected into volunteers, including physicians and medical students It was prepared by Dr F Himmelweit and his staff at the Wright-Fleming Institute Specimens of the new virus were flown from the Far East to the World Influenza Center in London Dr Himmelweit said We hope to have supplies of vaccine ready for use if outbreaks of the new influenza should occur in this country in the winter

THE LEISURE CORNER

MOUNTAIN CLIMBING

Nothing is more refreshing than to obtain a glimpse of nature first hand The more nature tries to conceal some aspect of herself, the more curious most of us become What, you may ask, is the lure that draws about a million people each year out of a comfortable way of life to face discomfort and danger, so that they may laboriously climb a few hundred or a thousand feet up the side of a mountain? The uncompromising fact is that danger itself attracts few people, actually, most are repelled by it Yet the persons who enjoy climbing mountains experience the same exhilaration that physicians do after overcoming a difficult medical or surgical problem

The attitude of mountain climbers toward the pastime has undergone a number of curious changes Ancient peoples, for instance, looked on mountains with indifference Throughout the Middle Ages mountains were regarded with fear and terror, for centuries, no one ventured to climb even their lowest peaks During the past century, however, men have lost their fear and have discovered courage and ambition to climb mountains Today, mountain climbing is regarded neither as a daring, dangerous adventure nor as a unique opportunity for exploration For millions of people the world over mountain climbing merely provides one of the hardier forms of outdoor sports

More than 250,000 mountain climbers are presently enrolled in the Alpine clubs of Europe alone Participants do not subscribe to a 'take-it-easy" philosophy Virtually all of them do some climbing every season, while thousands regularly assault the most difficult peaks A generation ago, climbing the Matterhorn or Mont Blanc made front-page news, now, at least 100 climbers attain the ultimate peaks of each of these mountains every season

Switzerland attracts thousands of mountain climbers from all parts of the world because of the Alps It is not uncommon for hotels to be built with infinite pain in altitudes well over 10,000 ft to accommodate such guests So great has the rush been to the mountains that extremely modest huts and cow barns are used to shelter the overflow of enthusiastic mountain climbers American mountains offer an irresistible appeal to mountain climbers Innumerable virgin peaks in the Far West are yet to be explored

Mountain climbing may be divided into two general classes—low climbing and high climbing, with the dividing line, or, more accurately, the elevation, that separates the two classes placed at 10,000 ft Mountains of the so-called low class include the White Mountains, the Adirondacks, and the ranges in the Carolinas Here, mountain activity will appeal to the run-of-the-mill summer visitor, with no serious dangers presented

In high mountain climbing, clothes and equipment are of vital importance Faulty clothes and incorrect equipment not only are a serious inconvenience but can indeed cause unnecessary suffering, as well as loss of life A proper climbing suit is made of special cloth, warm for its weight, and waterproof The fabric must be strong enough to avoid tearing when stretched across jagged rocks The shape of the suit is unimportant as long as it permits free movement It should have pockets large enough to hold various supplies, since both hands are required almost continuously for climbing The coat should be cut in such a way that it can be tightly buttoned about the neck, should the occasion demand, the collar can be turned up to protect the ears A special form of mountain boot is available with stout upper parts, heavy soles, and nails or cleats for snow and ice climbing Shoes designed for city wear would fall apart quickly under the stress of climbing Heavy woolen socks should be worn to guard against freezing The hat should fit the head snugly enough to defy a hazardous storm and should have folds that can be turned down over the ears Many amateur climbers venture forth in sartorially trim sport suits and shoes, often to return to their base of operations practically barefoot, with the seats of their trousers attached to jagged rocks as testimony to improper preparation for mountain climbing

An Alpine scarf is a useful article of dress for this type of adventure It should be about 6 ft long and consist of heavy, warm material A scarf has several functions in cold weather, it makes a good comforter, with a few skillful turns, it can serve as a warm head protector, when wound around the body, it supplements a sweater, and, when not required for any of these purposes, it may be wound around the waist as a belt

The provisions carried by the mountain climber depend strictly on his individual preferences and tastes Certainly, no specific menu is suitable for all climbers In general, the dry air found at high altitudes will frequently cause intense thirst Under these circumstances, only tea and coffee are recommended as suitable thirst-quencers Some guides carry wine and liquor, but the effect of alcohol under unusual atmospheric conditions at high altitudes is likely to be adverse

The impact of bright sunlight on great expanses of snow and ice makes snow-blindness a real threat To circumvent this, many types of glasses have been designed for climbers Another form of hazard comes as sunburn This can be avoided by painting the face with an appropriate anti-sunburn preparation, utilizing soot or charcoal as a base Although the appearance of the climber may be somewhat startling, the face will be protected from the sun's rays

A specially designed rope is the lifeline of every mountain climber It contains three strands, which are made of fine manila hemp to resist damp and rot The rope is readily recognized by a red streak of woven worsted which traverses its entire length The Al
rope is not, as some people imagine, a tethe
vent the climber from wandering off ar
lost A rope, when properly adjusted
entire party of mountain climbers on e
enables each climber to distribute the
position and to share his strength ,
member of the party The safety o
pends on an equitable marshalling
sources In rope work, the most d
are held by the best and most expe

very dangerous places, climbers will move one at a time, with others clinging to their respective positions in order to resist any unexpected tug or jerk caused by a fall or slip of one of the members of the party Should two men fall at the same time, all may be dislodged

Not all Americans are aware that the Rocky Mountains are vastly greater in area than the Alps, scattered as they are throughout Europe The Alps for generations have been associated with intense mountain climbing More recently, a younger generation of American climbers has discovered the awe-inspiring challenge of our own mountains In Montana and Wyoming alone there are scores of peaks rising from 10,000 to 13,000 ft in height, while Pike's Peak reaches 14,000 ft in altitude

Probably there is no other great snow-covered peak in the world that is visible to so many people as Mount Rainier in the state of Washington This is the only mountain where women guides are available to assist women Although Mount Rainier is a volcano, its crater has long been inactive, its bowl-like formation being filled with ice and snow Deep fissures extend far down into the heart of the mountain When snow melts, it flows down to meet the internal higher temperature of the mountain, where it boils quickly, coming up in the form of steam Parts of the crater often attain a temperature of 150 F

Perhaps no mountain in the world is more familiar by name than Mount Ararat in Armenia Mount Ararat not only is higher than Mont Blanc, the highest point in Europe, but also has the added advantage of having been the setting for many dramatic mountain-climbing adventures According to the Scriptures, Noah's Ark came to rest on Mount Ararat, whose peak attains a height of 17,260 ft The legend still persists that fragments of the Ark are to be found on its peak Ancient belief holds that Noah built a vineyard below the snow line of Mount Ararat, a site where he lies buried At any event, the biblical interest attached to this mountain has prompted many climbers to attempt its ascent

Those who climb Mont Blanc or the Matterhorn, as well as other famous mountains, are eloquent in their praise of beauteous wonders to be seen from their peaks Today, still and motion-picture cameras especially designed for mountain photography form an essential part of the equipment of mountain climbers Photography has brought the spirit of mountain climbing to many people who hitherto had never appreciated the breath-taking beauty of mountainous terrain

MEDICAL FILM REVIEWS

preted
ny eve
ndicates is
collective 56 ylcholine Chloride in Electroconvulsive Ther-
o the purc spasm 16 mm color, sound, showing time
n an individu ed by George J Thomas, M D, Pittsburgh
by Mervin LaRue, Inc, Chicago, for and
Prof from Abbott Laboratories, North Chicago,

On the basis this film is to show electroconvulsive re covered by without the use of amnesic and urance However nts It shows the value of thiopental sodium in accomplishing light anesthesia and amnesia and of succinylcholine chloride in reducing the severity of convulsive contracture of skeletal muscles The film also shows mild and severe laryngospasms and the ease of relieving these conditions with the administration of succinylcholine chloride intravenously This motion picture is quite good, however, the dosage of thiopental mentioned in the film is thought, by some, to be excessive The film is recommended for all neurologists, psychiatrists, anesthesiologists, nose and throat surgeons, and interns and residents

Teeth Their Structure and Care 16 mm color or black and white, sound, showing time 11 minutes Educational Collaborator J Robert Schumaker, D D S, Northwestern University Dental School Produced in 1956 by and procurable on rental or purchase from Coronet Instructional Films Inc, Coronet Building, Chicago 1

The purpose of this film is to show high-school students the structure and function of the teeth, to motivate interest in proper dental care, and to indicate how and why such care should be practiced After neglecting regular dental care for two years, a recurring pain prompts Dave to visit his dentist The audience sees, through animation, the function of different teeth, the structure of a tooth, and the way in which decay spreads Dave and the audience are motivated to care for the teeth as a means of insuring dental health In general, this is an excellent film, and every effort has been made to have it completely authentic The black-and-white diagram of the teeth is very good, however, the animation sequences showing the infection of a molar tooth are not well done In two places, the relationship of candy to cavities is mentioned, but the explanation, in both instances, is a little too simple The photography is good and the narration is clear and utilizes a minimum of words to make important points The film is recommended for students in junior and senior high school

Modern Concepts of Epilepsy 16 mm, color, sound, showing time 24 minutes Prepared by Francis M Forster, M D and Bushnell W Smith, M D, Washington, D C Produced in 1956 by Sturgis Grant Productions, New York, for and procurable on loan from Ayerst Laboratories, 22 E 40th St, New York 16

This film demonstrates the cortical differences between normal persons and epileptic patients and presents good demonstrations of actual cases of grand mal epilepsy, petit mal epilepsy, the clinical Jacksonian seizure, and psychomotor epilepsy Treatment by the various anticonvulsant drugs is also covered, although amounts for individual dosages are not mentioned The film reveals, through case histories, that epilepsy is a controllable condition when diagnosed and treated with full reference to the patient and his environmental situation This superior film is well organized and well illustrated It clearly presents and illustrates convulsions The presentation of subject matter, photography, and narration are extremely good It is highly recommended for general practitioners, pediatricians, house officers, medical students, and nurses

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Atypical Syndromes in Hyperthyroidism M G Wohl and C R Shuman Ann Int Med 46 857-867 (May) 1957 [Lancaster, Pa]

The authors report on 6 patients with atypical syndromes disguising hyperthyroidism Relative bradycardia occurred in the first patient, a 58-year-old man with congestive heart failure that was unresponsive to digitalis given for 7 months Nausea and burning eructations developed after the withdrawal of digitalis Symptoms of coronary artery insufficiency were absent, although the electrocardiogram revealed evidence of an old posterior myocardial infarct that may have involved the focus of impulse formation, making it resistant to the usual acceleration seen in thyrotoxicosis Rapid recovery from the thyrotoxic heart disease occurred in the patient within 3 months after treatment with antithyroid drugs was instituted, and nausea and flatulence disappeared on return to euthyroid status The second patient, a 32-year-old woman, had acute abdominal pain, auricular fibrillation, and precordial pain associated with thyrotoxicosis Mitral valvular disease was suspected and arrangements for gallbladder surgery were instituted because of the typical aspect of cholecystitis, but the patient's acute toxic manifestations suggested thyroid storm and she was treated with propylthiouracil Marked improvement was observed within 2 weeks The mechanism of abdominal pain and of the palpable tender mass in her right upper abdominal quadrant may have been acute enlargement of the liver due to congestion By recognizing thyrotoxicosis, an unnecessary operation was avoided and appropriate treatment led to correction of the condition

Congestive heart failure obscured the underlying metabolic disorder in the third patient, a 35-year-old man with thyrocardiac disease Prompt improvement resulted from administration of 7 7 μc of radioactive iodine over a period of 4 weeks Marked palpebral edema and the absence of a palpable thyroid gland in the presence of severe thyrotoxicosis were the significant features in the 4th patient, a 38-year-old man in whom the cardiac, renal, and biochemical findings failed to explain the edema With antithyroid medication and improvement in the patient's metabolic status, the signs of thyrotoxicosis disappeared and, simultaneously, the edema rapidly cleared Subsequently, when administration of strong iodine (Lugol's) solution was discontinued, the signs of thyrotoxicosis appeared and marked periorbital edema returned Chronic thyrotoxic encephalopathy with prolonged disorientation and stupor and associated with convulsive seizures was observed in the 5th patient, a 23-year-old woman who had been admitted to a neurosurgical ward Marked improvement resulted from intensive antithyroid treatment with strong iodine solution, methimazole (Tapazole), diphenylhydantoin (Dilantin) sodium, and phenobarbital to suppress the convulsions The last patient, a 37-year-old woman, had myasthenia gravis combined with thyrotoxicosis Treatment of thyrotoxicosis with strong iodine solution lessened the severity of the myasthenia and improved the response to neostigmine

Patients with hyperthyroidism, the usual signs of which were lacking, and whose presenting signs and symptoms were referable to the cardiovascular, gastrointestinal, or nervous central systems, thus, were treated unsuccessfully for months without the suspicion arising that the real cause was an overactive thyroid gland Painstaking scrutiny of the patient, with the aid of appropriate laboratory studies, revealed the underlying thyrotoxicosis, and proper treatment brought about amelioration of symptoms and complete recovery These cases emphasize the necessity for a constant awareness of the protean nature of thyrotoxicosis

Esophageal Ulcer in the Adult Clinical Aspects and Experiences with Conservative Treatment E D Palmer A M A Arch Int Med 99 695-700 (May) 1957 [Chicago]

Esophageal ulcer has a reputation for seriousness due to the constant threat of hemorrhage and perforation A radical operation is considered by some to be needed by most patients with such ulcers Twenty-three patients with primary esophageal ulcer were observed for varying periods during and following treatment They were selected by the single criterion that therapy was conservative The frequency of associated diseases, especially gastroduodenal ulcer, hiatal hernia, and subacute erosive esophagitis, was notable The main symptoms believed ascribable to esophageal ulcer were weight loss, dysphagia, and bleeding Di
nosis by esophagoscopic examination was
cient than that by roentgenologic stud
consisted of oral administration of b
bonate, periodic esophageal dilatatio
patients, interview therapy All of
followed to proved healing, and this 156
weeks Nine patients lost their sym (14 7%)
had no recurrence Nine had recur
a few weeks after ulcer healing,
have recurrent symptoms, believe
sisting disturbances in esophag ing

The place of publication of the periodicals appears in brackets preceding each abstract

Periodicals on file in the Library of the American Medical Association may be borrowed by members of the Association or its student organization and by individuals in continental United States or Canada who subscribe to its scientific periodicals Requests for periodicals should be addressed Library, American Medical Association ' Periodical files cover 1948 to date only, and no photoduplication services are available No charge is made to members, but the fee for others is 15 cents in stamps for each item Only three periodicals may be borrowed at one time, and they must not be kept longer than five days Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order Reprints as a rule are the property of authors and can be obtained for permanent possession only from them the latter had electocardiographic signs of pericarditis The objective results of treatment were good in all cases No strictures developed

Conservative management is not recommended as a routine approach to primary esophageal ulcer because of the danger of complications, particularly severe hemorrhage and perforation Complications are a consequence of therapeutic neglect, and it is demonstrated that, when an esophageal ulcer is diagnosed prior to any major complication other than hemorrhage, simple but vigorously applied medical treatment produces satisfactory results The main late complication of healing—stricture formation—can be prevented if dilatations are made part of the treatment

Results of Anticoagulant Therapy in 1,400 Patients with Mitral Valvular Disease J-L Beaumont, E Moeri and J Lenègre Arch mal cœur 50 225-236 (March) 1957 (In French) [Paris]

The purpose of these observations was to see whether prolonged medication with anticoagulants, assumed to be effective in preventing recurrent embolism in ambulant patients with mitral cardiopathy, might also be effective in preventing recurrent embolism in patients hospitalized with this condition The study involved 1,400 patients who entered the hospital either for examination or because of complications in connection with disease of the mitral valve The anticoagulants used were heparin, phenylindanedione, dicumarine ethyl ester, and G 23350 (J A M A 158 1143 [July 23] 1955) These were given prophylactically to 753 patients, including 113 who were being prepared for commissurotomy but were suspected of having thrombi in the left auricle, 267 exposed to the danger of embolism during treatment of auricular fibrillation with digitalis and hydroquinidine, and 362 with right ventricular insufficiency, which was the immediate consequence of catheterizing the chambers of the right side of the heart These 3 groups were matched against groups of 258, 69, and 358 patients respectively, who had the foregoing conditions but did not receive anticoagulant therapy

Those patients who were treated with anticoagulants for periods of 8 days or more had a mortality of only 1 5% as compared with 6 6% for the reference group, and their rate of thromboembolic complications during the period of hospitalization was 1 2% as compared with 7 08% for those not receiving anticoagulants Similarly, there was evidence that anticoagulant therapy reduced the incidence of fresh thromboses after commissurotomy from 50% to 14 2%, the incidence of embolism during the digitalis-hydro-
[illegible]idine defibrillation program from 5 7% to 0 37%
preted[illegible]cidence of thromboses during treatment for
an[illegible] eve[illegible]lar insufficiency from 9 4% to 1 6%
indicates [illegible] is [illegible]ne of the advantages of anticoagulant
[illegible] collective 56 [illegible] occurrence of hematuria, rectal bleed-
to the purc[illegible] at the site of intramuscular injections,
on an individu[illegible]ptysis, and, in 3 instances, cerebral
Prof[illegible]se complications were generally
al [illegible] fatal in 3 patients (0 39%) Two
On the basis [illegible]al hemorrhage, however, occurred
are covered by [illegible] not treated with anticoagulants
surance However

There was 1 death from heparin shock The data showed that the prophylactic use of anticoagulants in patients with mitral disease is effective if the above indications are observed and if the condition of the patient is closely followed by clinical and laboratory tests

Cardiovascular and Renal Complications of Cushing's Syndrome A Clinical and Pathological Study of 17 Cases D A Scholz, R G Sprague and J W Kernohan New England J Med 256 833-836 (May 2) 1957 [Boston]

A study of the lesions of the cardiovascular and renal systems of 17 patients with Cushing's syndrome was made, and autopsies were performed There were 15 women and 2 men, ranging in age from 15 to 52 years Only 2 of the patients were more than 40 years of age A significant elevation of blood pressure had been present in all 17 patients Hypertension developed, in general, in patients in the younger age group Cardiac enlargement, indicated by increased weight of the heart, was present in 15 patients The largest hearts were found in patients, in whom hypertension was most severe and prolonged Congestive heart failure occurred in 9 patients Of these, 3 died of cardiac failure with pulmonary edema and had severe hypertension and pronounced cardiac enlargement In 8 patients changes in the arterioles of the kidneys, liver, pancreas, and skeletal muscles occurred, that could not be differentiated from the lesions of the arterioles frequently found in so-called essential hypertension Renal calculi, nephrocalcinosis, or both, were present in 11 patients, and 8 of these also had osteoporosis Special emphasis is placed on the severity and duration of the hypertension in relation to the onset of other symptoms and on the seriousness of Cushing's syndrome from the standpoint of changes in the cardiovascular systems and the kidneys of a relatively young group of patients

The Effect of Ventricular Rate on the Blood Pressure of a Patient Treated with an External Artificial Pacemaker A H Douglas New York J Med 57 1595 1598 (May 1) 1957 [New York]

An external artificial pacemaker as first described by Zoll in 1952 consists of an electric circuit that produces repetitive stimuli of varying voltage and frequency Electrodes resembling those used in electrocardiography are applied to the external chest wall, the stimulating electrode being applied in the region of the cardiac apex and the indifferent electrode in the right pectoral region or on the posterior thoracic wall behind the stimulating electrode With the use of such a pacemaker, one can vary the patient's ventricular rate at will The author describes the use and effect of this external pacemaker in a 65-year-old man who was hospitalized because of syncope associated with a slow heart rate During his hospital stay, the patient had frequent Stokes-Adams seizures Because of long periods of ventricular standstill, an artificial pacemaker was applied, and its use was required intermittently for 11 days It was effective at all times For

4 days thereafter the patient was independent of the machine, but then arrest recurred Once more he responded to the electric stimuli, but 4 days after his last use of the artificial pacemaker, he was found dead as the result of suicide, he had insulated the stimulating electrode by placing gauze between the electrode and the chest wall

When an artificial pacemaker is used to treat ventricular arrest the systolic and pulse pressures fall as the rate is increased The diastolic pressure remains relatively stationary With ventricular rates in excess of 100 per minute, the blood pressure levels may be unobtainable It is recommended that a rate of 50 per minute be used when electric stimuli are applied to the external chest wall This relatively slow rate has been shown to be effective and has the added advantage of minimizing the distress caused by pectoral muscle contraction A similar rate is probably desirable when the exposed heart is stimulated directly or massaged manually The hypotension produced by a rapid rate associated with a fixed venous return to the heart and an unaltered peripheral resistance can explain the blood pressure fall occasionally found in paroxysmal tachycardia Therapy must be directed to slowing of the ventricular rate and the use of a pressor amine is not indicated unless there is evidence of peripheral vascular collapse

Clinical Significance of Oxygen Removal J C Kovach and G Morales J Thoracic Surg 33 690 697 (May) 1957 [St Louis]

Cardiopulmonary studies with particular reference to the oxygen removal rate were made in 21 surgical patients 8 women and 13 men, between the ages of 16 and 70 years Of these 6 had mitral stenosis, 1 had aortic stenosis, 3 had pulmonary tuberculosis, 5 had primary or secondary cancer of the lung, 1 had bronchiectasis 1 had pulmonary artery severance, 1 had pulmonary embolism, 1 had benign teratoma 1 had benign ganglioneuroma, and 1 had mediastinal torsion The oxygen removal is the amount of oxygen in milliliters that is removed from 1 liter of respired air The normal removal rate at rest is 40 ml per liter of ventilation and during exercise is 60 ml an increase of 50% Normal ventilation rates during rest and exercise are assumed to be 5 and 15 liters per minute for an average man

Right ventricular damage, which may be unrecognized per se, revealed itself as a diminished oxygen removal in the patient with bronchiectasis and in 1 patient with pulmonary tuberculosis This diminution was even more marked on exercise Malignant lesions, by intraluminal neoplastic invasion or unyielding extraluminal compression, resulted at rest in a decreased oxygen removal, which further decreased with exertion Pulmonary arterial obstruction from benign lesions did not cause a further decrease in the oxygen removal on exercise, because the increased ventilatory movement on exertion together with the increased cardiac output was able to by-pass effectively this 'benign obstruction' and the oxygen removal increased with exercise Secondary pulmonary metastatic lesions acted similarly through their method of spread, first growing near small vessels and so not obstructing much of the blood flow An extreme shift of the mediastinum with tension and deflection of the vena cava or pulmonary arteries also resulted in a diminished oxygen removal, which decreased still further with exercise The cause was usually obvious, such as a large aneurysm, thoracoplasty, and localized pulmonary contracting fibrosis The inflexibility of the causative agent resulted in this phenomenon Parenchymal disease affected perfusion and ventilation proportionately so that the oxygen removal did not change with exertion even if it was somewhat decreased at rest Valvular disease and right-sided and/or left-sided myocardial disease caused a decreased oxygen removal at rest The reaction to exercise varied with the status of the myocardium and hemodynamics The oxygen removal is a good index of the myocardial reserve Oxygen removal is tested easily and, when fully interpreted, is helpful in diagnosis and as part of a study to assess cardiopulmonary function since it depends on both

Placebo in the Treatment of Rheumatoid Arthritis and Other Rheumatic Conditions E F Traut and E W Passarelli Ann Rheumat Dis 16 18-21 (March) 1957 [London]

The effect of placebo tablets was studied in 88 patients with rheumatic arthritis Fifty-one of them were given the tablets for 4 weeks or less, 13 were found to have improved Of 37 patients who were treated continuously or progressively 31 improved for from 2 to 20 months The number of patients benefiting from placebos is about the same as that of those favorably influenced by methods of therapy reported in other studies Patients with degenerative arthritis, 4 with psoriatic arthritis, 6 with gouty arthritis, 10 with low back ache due to involvement of the soft tissues, and 18 with shoulder syndromes, had about the same response to placebo as those with rheumatic arthritis Placebo has been long recognized as an important factor in the results of physician-patient contacts An unrecognized placebo effect plays a great role in the treatment of the chronic diseases characterized by remissions Controls are particularly necessary in the evaluation of the treatment of joint diseases, because of the fluctuating character of these diseases and the many factors influencing them The conditions of patients benefited by the giving of placebo did not appear to be essentially altered by resorting to therapy with salicylates or cortisone The number of patients who improved justifies the continuation of placebo administration

Pernicious Anemia Without Gastric Atrophy the Presence of Free Hydrochloric Acid P Case J N Harris-Jones, H T Swan an hope Blood 12 461-468 (May) 1957 [N

The case of a 16-year-old girl ha anemia with free hydrochloric acid aroused great interest due to its rar to prove that a patient who has a m row and who made an excellent re

B_{12} therapy has been suffering from the results of deficient secretion of intrinsic factor There was no evidence of malabsorption of fat or folic acid, of intestinal lesions, or of nutritional deficiency Gastric juice was deficient in intrinsic factor The patient absorbed subnormal amounts of cobalt ^{56}—labeled vitamin B_{12} when this was given alone by mouth, but normal absorption occurred when the labeled vitamin B_{12} was given either with intrinsic factor or 15 minutes after an injection of carbachol One may conclude that deficient intrinsic factor production in this patient led to failure of absorption of vitamin B_{12}, resulting in a megaloblastic anemia, which can be called Addisonian pernicious anemia The patient had normal gastric mucosal histology It is suggested that gastric atrophy of pernicious anemia might result from prolonged subclinical vitamin B_{12} deficiency, secondary to failure of intrinsic factor secretion A deficient production of intrinsic factor may occur at a time when the gastric mucosa is otherwise normal both histologically and functionally

Steroid Therapy in Mumps Orchitis G W Zeluff and T J Fatherree Ann Int Med 46 852-856 (May) 1957 [Lancaster, Pa]

The authors describe 4 cases of mumps orchitis in men aged 37, 27, 19, and 50 years respectively The first patient was given hydrocortisone in doses of 20 mg 4 times a day The second and the third patients were given prednisone orally in doses of 5 mg 4 times a day The 4th patient received 20 mg of corticotropin intramuscularly every 6 hours A rapid remission was noted within 48 hours in all the patients, with a dramatic reduction in the local inflammation as well as in generalized systemic effects It is suggested that all patients with mumps orchitis be treated promptly with steroids except in the presence of the usual, unrelated contraindication to this form of therapy

Actinomycosis Its Recognition and Treatment J C Harvey, J R Cantrell and A M Fisher Ann Int Med 46 868 885 (May) 1957 [Lancaster, Pa]

Of 37 patients, 26 men and 11 women, between the ages of 19 and 66 years with actinomycosis, the anatomic location of the primary lesions was in the cervicofacial tissues in 9, in the lungs in 5, and in the abdominal tissues in 23 The occupations of the patients varied greatly There was no seasonal factor in the onset of the disease The diagnosis was established either by culture of the organism from the site of infection or by microscopic identification of the organism in the biopsy specimen Of 91 secondary lesions [illegible]ntified in the 37 patients, 50 involved the abdompreted[illegible] or viscera, 21 involved the thoracic wall or any eve[illegible] [illegible]were situated in the cervicofacial region, indicates[illegible] is[illegible] various other locations The treatment a collective56[illegible] patients varied Before 1945 no curto the purcire[illegible] specific treatment was given to any of on an individu[illegible]lides were routinely administered to s[illegible] patients were given thymol, irradia-Prof al [illegible]tried in a few patients, and surgical

On the basis [illegible]sses was performed occasionally are covered by surance However

Since 1945 all patients received penicillin as a specific treatment for the infection In the earlier patients the dose of penicillin varied from 300,000 to 1,000,000 units a day It is now standard practice to give 10,000,000 to 20,000,000 units of penicillin a day intravenously in a continuous drip After an initial period of 30 to 45 days of antimicrobic therapy, wide surgical excision of the infected tissues was performed In lesions involving the superficial structures, the wound was packed open and allowed to heal by secondary intention After the operation, 2,000,000 to 5,000,000 units of penicillin were given intramuscularly every day for 12 to 18 months The last 2 patients treated were given phenoxymethyl penicillin (penicillin V) in doses of 5,000,000 units daily, by mouth

Of the 37 patients, 31 were adequately followed, 14 recovered, and 17 died Of the 21 treated before 1945, 13 (62%) died, the disease progressed in 5 (24%), and 3 (14%) were cured Of the remaining 16 patients who were treated after 1945, 4 (23%) died and 12 (77%) were cured Of the 37 patients, 17 were treated with general supportive measures only and none of these were cured, of 4 treated by excision of infected tissues, 2 were cured, of 7 treated with penicillin only, 4 were cured, and, of 9 treated by excision and penicillin, 8 were cured The preferred treatment of actinomycosis is a combination of massive, long-term administration of penicillin and wide surgical excision of infected tissues With this combined therapy the cure rate in this infection has been raised to 88% in the last 5 years

A Case of Afibrinogenemia P B Fernando and B D Dharmasena Blood 12 474-479 (May) 1957 [New York]

Complete and permanent absence of fibrinogen is found only as a congenital abnormality This rare condition affects males more frequently than females, 16 of 23 patients with afibrinogenemia reported on in the literature were males The bleeding tendency made its appearance in all patients in early life Consanguinity of parents or grandparents has been noted in 9 and hemorrhagic diathesis in the relatives of 7 patients Spontaneous bleeding is unusual Six patients died in infancy or childhood due to excessive bleeding from trauma The bleeding time shows wide variations

Congenital afibrinogenemia occurred in a 22-year old Singhalese admitted to hospital with severe abdominal pain of 2 days' duration The principal features of the disease in this patient were the total absence of fibrinogen in the blood, noncoagulability of blood, history of several episodes of hemorrhage dating from infancy, low erythrocyte sedimentation rate, consanguinity of the parents, and the occurrence of spontaneous hemoperitoneum, from which he recovered after operation Treatment consisted of replacement transfusion with fibrogen or blood, combined with antishock therapy such as saline infusion, bed rest, and sedation Patients with afibrinogenemia have usually a poor prognosis This patient is the oldest of all reported on, he is leading an active life Although blood transfusion doubtlessly saved his life on this occasion, he had survived several episodes of bleeding The vascular mechanisms concerned in hemostasis apparently are as important for preservation of life as the coagulation of blood

The Hypoglycemic Response to Insulin in Man After Sulfonylurea by Mouth I A Mirsky and D Diengott J Clin Endocrinol 17 603 607 (May) 1957 [Springfield, Ill]

Of 10 patients with diabetes mellitus in whom the administration of from 50 to 100 mg of 1-butyl-3-p-tolylsulfonylurea (Orinase) per kilogram of body weight given orally had not produced a significant reduction of the blood sugar level, venous blood samples were taken before and at half-hour intervals after the intravenous injection of 0 1 unit of insulin per kilogram of body weight At the end of the second hour, each patient was given 50 to 100 mg of tolbutamide per kilogram of body weight as a 2% solution in 0 5% sodium bicarbonate adjusted to pH 8 Blood samples were taken at 1 and 2 hours after the administration of the tolbutamide The insulin-tolerance test was then repeated Ten additional patients with diabetes mellitus served as controls in that they were given the sodium bicarbonate solution alone instead of that containing tolbutamide

Essentially identical hypoglycemic responses occurred after each injection of insulin in the patients given sodium bicarbonate between the injections Thus, there was no statistically significant difference in the percentile decrease in the blood sugar level at each interval after the first and second injections of insulin Although tolbutamide did not induce a decrease in the concentration of blood sugar, its administration resulted in a more marked response to the same quantity of insulin The difference between the values obtained at all intervals after the second injection of the insulin was statistically significant The increased hypoglycemic response to the administration of exogenous insulin in patients with diabetes mellitus who manifested no response to that of the sulfonylurea alone is attributed to an inhibition of insulinase and a consequent decrease in the rate of insulin destruction

SURGERY

Experiences with Radioisotopes in Stereotactic Operations on the Hypophysis T Riechert and F Mundinger Chirurg 28 145-151 (April) 1957 (In German) [Berlin]

The authors show that, with the aid of the stereotactic operative procedure, which was first used in human beings by Spiegel and Wycis in 1947, it is possible to reach deep intracranial structures by puncture without damaging the more externally located layers of the brain For the operations on the hypophysis described the authors used their aiming or target apparatus, which was described earlier In order to permit introduction of the target needle, a basic ring that will not shift is fastened to the head of the patient A semicircular, rotatable target handle with an adjustable needle holder is attached to this ring The puncture is made either through a small trephine opening in the cranial vault (transfrontal) or, after the downward-folding of the target handle, from the facial direction (transethmoidally) In extremely debilitated patients, the stereotactic operation can be performed in 2 stages, the trephine hole for the transfrontal approach being made at the first operation The 248 stereotactic operations carried out by the authors included 79 on the hypophysis of 62 patients

They describe the introduction of the target needle into the hypophysis under roentgenologic control and the subsequent introduction of high frequency current or radioactive isotopes The patient must be fully conscious during these manipulations so that he can give information about his vision and visual fields Exclusion of the hypophysis by stereotactic application of radioactive isotopes or high frequency current was performed in 47 of the 62 patients for removal of tumors of the hypophysis, in 6 for tumors of the hypophyseal (craniopharyngeal) duct, in 4 patients for malignant hypertension, and in 5 patients for sex-hormone–dependent carcinomas The isotopes used were radioactive phosphorus P^{32}, and radioactive gold, Au^{198} No fatalities resulted from the stereotactic operations on the hypophysis, and the therapeutic results corresponded to those obtained with open operations on the hypophysis In retrospect it appears to the authors that a primary open operation might be advantageous If the open operation should disclose a large tumor and the patient's general condition is poor, the operation could be restricted to the incision of the capsule and partial removal of the tumor to be followed by stereotactic application of radioactive isotopes after the surgical wound has healed

Cancer of the Tongue A Study Based on 653 Patients S Cade and E S Lee Brit J Surg 44 433-446 (March) 1957 [Bristol England]

During the 30 years that have elapsed since Cade and Evans gave a preliminary report on treatment of cancer of the tongue with radium, Cade and associates have made observations on 653 patients Whereas in 1925 there were 10 men to 1 woman among the patients with cancer of the tongue, this ratio has gradually fallen to 2 1 They differentiate between "small' and 'large' rather than early and late lesions, since reliable statements about the length of the history were rare The lymph nodes had become involved in 57% of the patients when first seen, and in about half of the remaining 43% the lymph nodes became involved later Histologically, all but 8 of the tumors were squamous cell carcinoma In Britain today the commonest ulcer of the tongue is cancer, altho
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166
(14 7%)

B_{12} therapy has been suffering from the results of deficient secretion of intrinsic factor There was no evidence of malabsorption of fat or folic acid, of intestinal lesions, or of nutritional deficiency Gastric juice was deficient in intrinsic factor The patient absorbed subnormal amounts of cobalt ^{60}—labeled vitamin B_{12} when this was given alone by mouth, but normal absorption occurred when the labeled vitamin B_{12} was given either with intrinsic factor or 15 minutes after an injection of carbachol One may conclude that deficient intrinsic factor production in this patient led to failure of absorption of vitamin B_{12}, resulting in a megaloblastic anemia, which can be called Addisonian pernicious anemia The patient had normal gastric mucosal histology It is suggested that gastric atrophy of pernicious anemia might result from prolonged subclinical vitamin B_{12} deficiency, secondary to failure of intrinsic factor secretion A deficient production of intrinsic factor may occur at a time when the gastric mucosa is otherwise normal both histologically and functionally

Steroid Therapy in Mumps Orchitis G W Zeluff and T J Fatherree Ann Int Med 46 852-856 (May) 1957 [Lancaster, Pa]

The authors describe 4 cases of mumps orchitis in men aged 37, 27 19, and 50 years respectively The first patient was given hydrocortisone in doses of 20 mg 4 times a day The second and the third patients were given prednisone orally in doses of 5 mg 4 times a day The 4th patient received 20 mg of corticotropin intramuscularly every 6 hours A rapid remission was noted within 48 hours in all the patients, with a dramatic reduction in the local inflammation as well as in generalized systemic effects It is suggested that all patients with mumps orchitis be treated promptly with steroids except in the presence of the usual, unrelated contraindication to this form of therapy

Actinomycosis Its Recognition and Treatment J C Harvey, J R Cantrell and A M Fisher Ann Int Med 46 868-885 (May) 1957 [Lancaster, Pa]

Of 37 patients, 26 men and 11 women, between the ages of 19 and 66 years with actinomycosis, the anatomic location of the primary lesions was in the cervicofacial tissues in 9, in the lungs in 5, and in the abdominal tissues in 23 The occupations of the patients varied greatly There was no seasonal factor in the onset of the disease The diagnosis was established either by culture of the organism from the site of infection or by microscopic identification of the organism in the biopsy specimen Of 91 secondary lesions n[illegible]ntified in the 37 patients, 50 involved the abdom- preted[illegible] or viscera, 21 involved the thoracic wall or any eve [illegible] were situated in the cervicofacial region, indicates [illegible] various other locations The treatment a collective 56 [illegible] patients varied Before 1945 no cur- to the purc[illegible] specific treatment was given to any of on an individu[illegible]lides were routinely administered to [illegible] patients were given thymol, irradia- Prof [illegible] tried in a few patients, and surgical On the basis [illegible]sses was performed occasionally are covered by surance However

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With a dose rate of from 40 to 50 r per hour, a total dose of 7,000 to 8,000 r can be given in 7 days The authors carried out 573 tongue implants in 507 patients Conventional roentgen therapy with 200 or 400 kv has proved disappointing, and these rays should be used only in the form of 2 million volts The authors used teleradium units whenever external irradiation seemed indicated, and recently they used radioactive cobalt They believe that radical surgery is rarely necessary, primary radium resistance or post-irradiation recurrences being about the only indications for radical operations

Surgical therapy is preferable to radium therapy, however, for the treatment of cervical lymph nodes A total of 461 of the 518 patients treated up to the end of 1950 could be traced, 124 of these survived for at least 5 years The authors conclude that interstitial radium therapy permits the delivery of an adequate dose of radiation within a week The postradiation effects are moderate and subside in about 3 to 4 weeks Scarring is minimal and the functional result is good Primarily radioresistant lesions can be recognized early and operated on without delay Teletherapy is the method of choice in lesions of the posterior part of the tongue, in large tumors, and in cases deemed unsuitable for needling Palliative and radical surgery are reserved for selected cases The treatment of choice for cervical lymph nodes remains radical or block dissection of the neck under certain well-defined conditions Taking into account the great palliative value, the authors believe that radium therapy remains the method of choice in the great majority of patients

Bridging of Laryngopharyngeal and Upper Cervical Esophageal Defects Use of Artificial Materials H M Morfit, C T Klopp and A J Neerken A M A Arch Surg 74 667-674 (May) 1957 [Chicago]

Of 51 patients with cancers arising in the laryngopharynx, extrinsic larynx, and upper part of the esophagus who were subjected to laryngopharyngectomy, partial esophagectomy, and neck dissection and in whom restoration of the pharyngoesophageal continuity was accomplished after complete removal of the tumor, primary closure was performed in 40 and prosthetic closures were required in 11 In the latter continuity was established with a cylindrical molded tube of polyethylene with a lumen about 1 5 cm in diameter and walls about 4 mm thick The polyethylene tube was inserted inside the ends of the pharynx and cervical esophagus and sutured with interrupted mattress sutures Strap muscles or occasionally prevertebral muscles were tacked down to support this [illegible]stomosis' insofar as possible There was 1 opera-[illegible] due to hemorrhage from a large pharyngeal [illegible] remaining 10 patients, the immediate [illegible] satisfactory Although the tubes were [illegible]-ed in 8 patients, they remained in a collective [illegible] for a serviceable conduit to form to the [illegible] table channel for the ingestion of on an individu[illegible]on occurred in 5 of the 10 patients Prof [illegible]eously in all but 1 Long-term [illegible] revealed recurrent cancer at the

On the basis [illegible] atients and at the end of the 4th are covered by [illegible] surance However [illegible] year in the 10th patient This discouraging long-term salvage rate contrasts sharply with that achieved in the 40 patients with primary closure Fourteen of the 40 patients were alive and well after 3 years The average duration of life postoperatively in the 26 patients with primary closure who were therapeutic failures was 9 8 months as compared to 10 5 months in the 10 patients with prosthetic closure

When the growth is limited enough to be extirpated by combined neck dissection, total laryngectomy, and partial pharyngectomy and for a primary closure to be obtained, the end-results indicate that the effort is worth while Extension of the surgical removal beyond the above limits by means of a prosthesis can be achieved and is practical from the point of view of operative mortality and morbidity, but the long-term follow-up indicates that, when the growth is so extensive that these auxiliary measures must be called on, little or no increase in the salvage rate can be expected

Histopathological Aspects of 113 Auricular Biopsies Taken During Operations for Mitral Commissurotomy A Consideration of Latent Forms of Rheumatic Heart Disease S Papadopol and H Ioachim Arch mal cœur 50 205-217 (March) 1957 (In French) [Paris]

Bits of tissue were obtained from the auricular appendage of the heart during operations for commissurotomy Microscopic examination of these specimens in 30 cases revealed subendothelial granulomatous nodules (rheumatic nodes of Aschoff) As many as 8 of these nodules could be seen in a field, and they were associated with a rich infiltration of wandering cells of the lymphoid or histioid type into the endocardium and subendothelial tissue This condition was interpreted as subacute rheumatic endocarditis In 7 cases there was an infiltration with lymphocytes and polyblasts without the formation of Aschoff bodies, this condition was interpreted as subacute lymphocytic endocarditis In 76 cases interpreted as chronic sclerogenic endocarditis, there appeared to have been a subsidence of the lymphocytic infiltration paralleled by a proliferation of the fibrocollagenous tissue Groupings reminiscent of Aschoff bodies remained, but the picture was that of advanced sclerosis

The myocardium showed corresponding changes, these were classified as subacute rheumatic myocarditis in 14 cases, subacute lymphocytic myocarditis in 6, and chronic sclerogenic myocarditis in 39 The pericardium generally showed a relative thickening but little else except in 3 cases In 2 of these a subacute rheumatic endocarditis was accompanied by an appreciable thickening of the epicardium and a vascular neogenesis, in the third there was a thrombus in the lumen of the atrium and intense pericarditis The auricular lumen was generally clear, but in 7 cases mural thrombi caused partial or total obstruction

The data failed to show that tonsillectomy had exerted any curative or preventive effect on the rheumatic infection Eleven patients developed the complication known as postcommissurotomy syndrome, but no relation was found between the incidence of this syndrome and the finding of Aschoff bodies at biopsy

TABLE 9 — *Is a claims review program now offered by your state medical society? If Yes above, how do you rate this program?*
Harmful Ineffectual Adequate Excellent

	Program Offered				Program Rating				
	Yes		No						
	Number	Per Cent	Number	Per Cent	Harmful	Ineffectual	Adequate	Excellent	No Opinion and No Answer
Alabama	2	7.1	26	92.9		1	1		
Arizona	8	30.8	18	69.2			6	1	1
Arkansas	12	37.5	20	62.5		5	5	1	1
California	93	29.2	226	70.8	2	13	57	12	9
Colorado	50	87.7	7	12.3	1	1	29	15	4
Connecticut	17	42.5	23	57.5		2	11	1	3
Delaware	5	25.0	15	75.0		1	3	1	
Florida	25	28.1	64	71.9		3	12	3	7
Georgia	19	29.7	45	70.3		1	12	3	3
Idaho	17	60.7	11	39.3		2	7	6	2
Illinois	35	17.1	170	82.9		9	14	4	8
Indiana	40	34.5	76	65.5	1	8	21	5	5
Iowa	43	48.3	46	51.7	1	7	22	10	3
Kansas	12	22.6	41	77.4		1	8	3	
Kentucky	12	30.8	27	69.2		1	6	1	4
Louisiana	17	43.6	22	56.4	1		10	1	5
Maine	6	35.3	11	64.7			2	3	1
Maryland	20	41.7	28	58.3			12	4	4
Massachusetts	37	32.7	76	67.3		3	18	8	8
Michigan	19	14.6	111	85.4		4	12	2	1
Minnesota	44	54.3	37	45.7		2	22	11	9
Mississippi	10	27.0	27	73.0		1	7	1	1
Missouri	5	6.0	79	94.0		2	2	1	
Montana	19	79.2	5	20.8	1		10	6	2
Nebraska	24	61.5	15	38.5			14	6	4
Nevada			4	100.0					
New Hampshire	14	73.7	5	26.3			5	7	2
New Jersey	35	21.2	130	78.8		3	19	7	6
New Mexico	11	55.0	9	45.0			5	5	1
New York	71	25.2	211	74.8		13	38	9	11
North Carolina	14	18.7	61	81.3		1	9		4
North Dakota	4	23.5	13	76.5		1	3		
Ohio	18	9.8	166	90.2		3	11		4
Oklahoma	24	54.5	20	45.5		3	15	2	4
Oregon	24	60.0	16	40.0		3	7	12	2
Pennsylvania	36	18.2	162	81.8		3	23	4	6
Rhode Island	21	100.0				1	16	3	1
South Carolina	7	23.3	23	76.7			4		3
South Dakota	1	10.0	9	90.0		1			
Tennessee	11	19.0	47	81.0		2	5	3	1
Texas	37	24.8	112	75.2		3	25	4	5
Utah	13	81.2	3	18.8		1	8	3	1
Vermont	5	35.7	9	64.3			5		
Virginia	9	20.9	34	79.1			6		3
Washington	34	46.6	39	53.4	2	3	18	6	5
West Virginia	12	25.0	36	75.0		2	6	1	3
Wisconsin	28	32.9	57	67.1		1	15	6	6
Wyoming	6	42.9	8	57.1		1	4		1
Dist. of Columbia	29	85.3	5	14.7		2	15	10	2
United States	1 055	30.5	2 405	69.5	9	114	585	191	156
Hawaii	6	31.6	13	68.4		2	2	2	
Alaska			3	100.0					
Total	1 061	30.5	2 421	69.5	9 (0.9%)	116 (10.9%)	587 (55.3%)	193 (18.2%)	156 (14.7%)

TABLE 8 — *Is a claims review program now offered by your county medical society? Yes No If Yes above, how do you rat program? Harmful Ineffectual Adequate Excellent "*

	Program Offered				Program Rating				
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Arkansas	5	14.7	29	85.3			3	2	
California	441	86.0	72	14.0	6	28	233	147	27
Colorado	29	44.6	36	55.4	1	5	13	9	1
Connecticut	39	73.6	14	26.4		3	25	8	3
Delaware	6	30.0	14	70.0		1	2	2	1
Florida	54	48.6	57	51.4	1	6	29	10	8
Georgia	34	38.2	55	61.8		2	20	6	6
Idaho	14	46.7	16	53.8		4	6	2	2
Illinois	75	28.3	190	71.7		13	40	15	7
Indiana	39	27.3	104	72.7		5	26	7	1
Iowa	12	12.2	86	87.8		5	6		1
Kansas	7	11.5	54	88.5		1	4	1	1
Kentucky	19	38.8	30	61.2		2	12	5	
Louisiana	22	46.8	25	53.2	1	4	11	3	3
Maine	4	19.0	17	81.0		1	1	1	1
Maryland	17	31.5	37	68.5		1	11	3	2
Massachusetts	17	13.8	106	86.2			13	3	1
Michigan	67	37.0	114	63.0		7	47	12	1
Minnesota	29	30.2	67	69.8		2	18	6	3
Mississippi	9	20.5	35	79.5		1	7	1	
Missouri	26	23.4	85	76.6	1	1	13	6	5
Montana	6	21.4	22	78.6		1	5		
Nebraska	17	36.2	30	63.8		1	10	6	
Nevada	1	20.0	4	80.0		1			
New Hampshire	2	10.5	17	89.5				2	
New Jersey	64	31.5	139	68.5		6	36	12	10
New Mexico	3	15.0	17	85.0			2	1	
New York	209	52.8	187	47.2		23	122	40	24
North Carolina	12	13.3	78	86.7		1	9	2	
North Dakota	3	15.8	16	84.2		1	1		1
Ohio	84	30.8	189	69.2		10	50	19	5
Oklahoma	17	30.9	38	69.1		1	11	5	
Oregon	21	42.9	28	57.1			14	6	1
Pennsylvania	92	32.9	188	67.1		8	60	17	7
Rhode Island	11	55.0	9	45.0		1	8	2	
South Carolina	2	6.7	28	93.3			2	-	
South Dakota			10	100.0					
Tennessee	27	35.5	49	64.5	1	3	16	6	1
Texas	81	38.2	131	61.8		7	50	17	7
Utah	11	73.3	4	26.7			7	4	
Vermont	3	17.6	14	82.4			2	1	
Virginia	18	32.7	37	67.3		3	8	4	3
Washington	46	49.5	47	50.5	2	4	31	6	3
West Virginia	21	38.2	34	61.8		3	17		1
Wisconsin	27	26.5	75	73.5	1	4	14	5	3
Wyoming	6	42.9	8	57.1			6		
Dist of Columbia									
United States	1,765	39.6	2,687	60.4	14	171	1,028	409	143
Hawaii	11	57.9	8	42.1		1	8	2	
Grand total	1,776	39.7	2,695	60.3	14 (0.8%)	172 (9.7%)	1,036 (58.3%)	411 (23.1%)	143 (8.1

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The frequency with which cardiac arrest (asystole and ventricular fibrillation) occurs has been recognized more accurately during the past decade A voluminous literature has accumulated on the theoretical, experimental, electrocardiographic, functional, prophylactic, and clinical aspects of cardiac arrest and cardiac massage, but little attention has been devoted to the damage to the heart that may be sustained as a result of rhythmic intermittent manual compression This report deals with 60 patients who died either during or after cardiac massage and who underwent autopsy Massage was performed by persons with varying levels of medical training and experience (intern, resident, and extern) Group 1 consisted of 44 patients who did not survive the cardiac massage and group 2 of the 16 who did A heart was considered to have sustained no damage from manual manipulation if the only abnormalities noted at autopsy consisted of a few subepicardial or subendocardial petechiae While such small hemorrhages may have been traumatic in origin, they are indistinguishable from those found in persons who died of shock or anoxia The heart was considered to have sustained slight damage if it presented multiple subepicardial or subendocardial petechiae or zones of hemorrhagic extravasation Small areas of intramyocardial hemorrhage were a frequent accompaniment Moderate damage was diagnosed in the presence of extensive subepicardial or subendocardial hemorrhagic extravasation accompanied by prominent intramyocardial hemorrhage Damage was considered severe when gross laceration of the heart or a major structure was present In all such cases, the subepicardial, subendocardial, and intramyocardial hemorrhagic extravasation was striking None of the 6 patients whose hearts showed severe injury survived the massage Five of these presented gross myocardial laceration, and 1 showed laceration of a major coronary vein Of the hearts of the remaining 38 patients who did not survive cardiac massage, 12 showed moderate, 7 slight, and 9 no damage

Twenty-six of the 44 hearts in group 1 were in asystole when first examined The remainder included 5 with ventricular fibrillation, 2 with idioventricular rhythm, 1 with a feeble beat, and 1 with a weakly co ordinated beat No data were available in 9 Thirty-three patients failed to respond to massage with any evidence of spontaneous cardiac activity The others demonstrated occasional spontaneous beats, intermittent ineffective beats, ineffectual vermiform auricular or ventricular twitches, and ventricular fibrillation, that did not respond to defibrillatory measures No instances of effective circulatory response were noted in this group In the 16 patients in group 2, asystole was noted in 13 patients One heart was in ventricular fibrillation, and no data were available in 2 Two of the hearts in asystole were converted to fibrillation and successfully defibrillated Regular sinus rhythm ultimately developed in all 16 patients Seventeen patients in group 1 and 7 in group 2 were treated only by massage The others in both groups were subjected to a variety of therapeutic agents and procedures either singly or in combination Nevertheless, prolonged massage (more than 1 hour) can be carried out without producing significant cardiac damage The most frequent lethal sequel to cardiac arrest is anoxic damage to the central nervous system Constant vigilance and prompt intervention are the only valid prophylactic measures The cardiac injuries produced by massage are a result of the technique rather than of its duration Instruction in the theoretical and practical aspects of cardiac massage are prerequisites for successful cardiac resuscitation

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Cholecystitis Glandularis Proliferans L P Le Quesne and I Ranger Brit J Surg 44 447-458 (March) 1957 [Bristol, England]

The development of epithelial sinuses or diverticula penetrating into, or even beyond, the muscle coat is a common change in chronic cholecystitis These diverticula are often referred to as Rokitansky-Aschoff sinuses Unfortunately, Aschoff referred to these same structures as 'Luschka ducts,' confusing them with the minute, aberrant bile-ducts described by Luschka There are 2 distinct structures 1 *Luschka's ducts*, which are duct-like structures found occasionally in the periphery of the gallbladder wall and occurring

TABLE 8 — *Is a claims review program now offered by your county medical society? Yes No If Yes above, how do you rate thi program? Harmful Ineffectual Adequate Excellent "*

	Program Offered				Program Rating				
	Yes		No						
	Number	Per Cent	Number	Per Cent	Harmful	Ineffectual	Adequate	Excellent	No Opinion an No Answer
Alabama	8	25 0	24	75 0		1	3	2	2
Arizona	8	27 6	21	72 4			4	3	1
Arkansas	5	14 7	29	85 3			3	2	
California	441	86 0	72	14 0	6	28	233	147	27
Colorado	29	44 6	36	55 4	1	5	13	9	1
Connecticut	39	73 6	14	26 4		8	25	3	3
Delaware	6	30 0	14	70 0		1	2	2	1
Florida	54	48 6	57	51 4	1	6	29	10	8
Georgia	34	38 2	55	61 8		2	20	6	6
Idaho	14	46 7	16	53 3		4	6	2	2
Illinois	75	28 3	190	71 7		18	40	15	7
Indiana	39	27 3	104	72 7		5	26	7	1
Iowa	12	12 2	86	87 8		5	6		1
Kansas	7	11 5	54	88 5		1	4	1	1
Kentucky	19	38 8	30	61 2		2	12	5	
Louisiana	22	46 8	25	53 2	1	4	11	3	3
Maine	4	19 0	17	81 0		1	1	1	1
Maryland	17	31 5	37	68 5		1	11	3	2
Massachusetts	17	13 8	106	86 2			13	3	1
Michigan	67	37 0	114	63 0		7	47	12	1
Minnesota	29	30 2	67	69 8		2	18	6	3
Mississippi	*9*	*20 5*	*35*	79 5		1	7	1	
Missouri	26	23 4	85	76 6	1	1	13	6	5
Montana	6	21 4	22	78 6		1	5		
Nebraska	17	36 2	30	63 8		1	10	6	
Nevada	1	20 0	4	80 0		1			
New Hampshire	2	10 5	17	89 5				2	
New Jersey	64	31 5	139	68 5		6	36	12	10
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North Dakota	3	15 8	16	84 2		1	1		1
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Oklahoma	17	30 9	38	69 1		1	11	5	
Oregon	21	42 9	28	57 1			14	6	1
Pennsylvania	92	32 9	188	67 1		8	60	17	7
Rhode Island	11	55 0	9	45 0		1	8	2	
South Carolina	2	6 7	28	93 3			2	-	
South Dakota			10	100 0					
Tennessee	27	35 5	49	64 5	1	3	16	6	1
Texas	81	38 2	131	61 8		7	50	17	7
Utah	11	73 3	4	26 7			7	4	
Vermont	3	17 6	14	82 4			2	1	
Virginia	18	32 7	37	67 3		3	8	4	3
Washington	46	49 5	47	50 5	2	4	31	6	3
West Virginia	21	38 2	34	61 8		3	17		1
Wisconsin	27	26 5	75	73 5	1	4	14	5	3
Wyoming	6	42 9	8	57 1			6		
Dist of Columbia									
United States	1 765	39 6	2 687	60 4	14	171	1 028	409	143
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The authors recently observed 12 cases of cholecystitis glandularis proliferans In 4 the lesion was found incidentally at autopsy, the remaining 8 patients were observed in clinical practice, and in these the lesions were apparent on cholecystography In each patient the condition gave rise to a macroscopic, localized lesion in the gallbladder, the remainder of the viscus being normal The authors emphasize that cholecystitis glandularis proliferans is not just a variant of ordinary chronic cholecystitis, but that, in fact, it constitutes a specific disease entity, and that the essential feature of the condition is a localized area of penetrating epithelial sinus formation with muscular hypertrophy In view of the nature and distribution of the lesions, it is suggested that the condition results from some disturbance in the normal contraction of the gallbladder

Perforated Appendicitis 391 Cases Without Mortality

R M Bolman II, R P Lloyd and R R Johnson A M A Arch Surg 74 719-732 (May) 1957 [Chicago]

Of 391 patients with perforated appendicitis, 217 male and 174 female, between the ages of 14 months and 89 years, who were operated on in the course of 11 years, none died Of 104 patients with perforated appendicitis who were operated on in another hospital in the same community during the same period, 8 died The authors' mode of preparation, operative technique, and postoperative care were as follows The minimum time between admission and operation was 2 hours and the maximum 21 hours When preparation was necessary, a Levin tube was installed and suction was started immediately, and the patient kept this through the operation and postoperatively until normal peristalsis was established During the period of preparation 600,000 units of penicillin and 0 5 Gm of streptomycin were given intramuscularly every 8 hours If the urinary output of the patient whose condition was critical was nearly adequate during his first intravenous infusion, 2 5 Gm of sulfadiazine sodium was given during the second infusion This was the dose for an adult weighing 150 lb (68 kg), and the dose was adjusted for children and elderly adults If the urinary output continued to be satisfactory after operation, another 2 5 Gm of sulfadiazine was given in the first 24 hours postoperatively More than this was never given The administration of penicillin and streptomycin was continued postoperatively for 5 to 7 days and was supplemented when necessary with whatever antibiotic was recommended by the sensitivity test run routinely on the exudate obtained at operation During the preoperative period any associated disease must be evaluated, its importance estimated, and a concerted attempt toward control instituted Inhalation anesthesia with thiopental (Pentothal) sodium, cyclopropane, nitrous oxide, and ether through an endotracheal tube is the method of choice

A far lateral McBurney incision was used exclusively The suction was so placed as to receive the exudate before the opening of the peritoneum Double ligation of the uncrushed appendiceal base was carried out When the proximal portion of the appendix was not involved in the inflammation, the stump was not inverted The stump was treated with mercocresols rather than any caustic agent When the basal portion of the appendix was inflamed and friable, a Moynihan Z-stitch was used for inversion A free omental graft was applied over a friable cecum and stump The constant use of the suction tip minimized contamination and helped maintain gentle exposure A gentle exploring finger was introduced into the pelvis The loops of intestine in the immediate vicinity were inspected carefully and gently If exudate was found, it was gently aspirated At this point 1 to 2 qt (1,000 cc) of sodium chloride solution at body temperature was poured slowly into the incision and allowed to gravitate to the pelvis, from which point aspiration is easy The last 220 patients had no medication placed in the abdomen If there was a severe spreading peritonitis, the patient was given 1,000,000 units of aqueous penicillin and 1 Gm of aqueous streptomycin intramuscularly on the operating table Closure of the peritoneum was accomplished with fine continuous absorbable surgical suture The abdominal wall was scrubbed with soap and water after tight closure of the peritoneum No intra-abdominal drains were used in the last 226 patients, and the authors found no indication for this type of drainage The early and prolonged use of the indwelling stomach tube and suction is stressed The aim, when possible, is to prevent rather than treat distention

It is believed that complete application and strict adherence to this plan of treatment, with the same vigor as is used in upper abdominal or vascular operations, should reduce the mortality from perforated appendicitis to a minimum

Ochronosis

G K Rose Brit J Surg 44 481-482 (March) 1957 [Bristol, England]

Rose presents the history of a 57-year-old woman, who complained of pain in both hips She was older in appearance than her years She walked with an extremely poor gait, with her hips in a flexed position and leaning forward on to a stick All movements of her spine were grossly limited, and she stood with a marked pelvic tilt The right hip was ankylosed in a position of flexion and adduction She also had gross osteoarthritic changes in the knees When the patient was hospitalized, it was noted that her urine reduced Benedict's solution, but it was recognized that this was a false reduction from the point of view of sugar although the true significance was not appreciated When operation was undertaken it was noted that in the long head of the rectus femoris there was a small black tumor, which was found to be composed of coal-black material When the hip joint was exposed it was found that the inferior half of the cartilage had a similar appearance to the small swelling At this stage the significance of the urine tests became apparent and a diagnosis of alkaptonuria with ochronosis was made

The condition is usually recognized in childhood and frequently by the black staining of napkins Later in life it may be discovered during routine examination of the urine The condition is compatible with long life, and there are no clinical manifestations other than the discoloration of the urine until the second or third decade when ochronosis tends to appear The color of the freshly voided urine is not unusual, if it is acid, but, if it is alkaline, it appears as some variant of brown or even black When the appearance of the urine is normal, it reduces Benedict's solution, giving rise to a yellow or orange precipitate and a brown or black supernatant fluid When ferric chloride is added drop by drop an evanescent blue color appears, and, when a strong alkali is added and the specimen shaken, it promptly turns dark All of the above reactions are presumptive evidence of alkaptonuria but isolation of homogentisic acid is the only certain proof

Signs that may be associated with ochronosis include patches of light brown or slate-grey pigment in the scleras on either side of the corneal limbus and bluish discoloration of the external ear, the nasal cartilages, and superficial muscle tendons of the hands Brown pigmentation may be seen in the skin, particularly that of the face, axillary folds, thenar and hypothenar eminences, and the nails The perspiration may be black or brown and the cerumen similarly deepened in color On X-ray examination the presence of thinned, densely calcified, intervertebral disks is characteristic In addition, degenerative osteoarthritic changes are apparent in the spine, lumbosacral, sacroiliac, shoulder, hip, and knee joints, and calcifying deposits may be seen in tendons about the large joints The woman had few of the signs of alkaptonuria She had faint blueness of the cartilage of the ears and black spots on the conjunctivas Roentgenologic examination, however, showed the characteristic changes

Carcinoma of the Uterine Tube A Review and a Description of a Case with Unusual Clinical Features, Presenting as an Acute Abdominal Emergency W F W Southwood Brit J Surg 44 487-489 (March) 1957 [Bristol, England]

A preoperative diagnosis of carcinoma of the uterine tube is seldom made Of over 500 cases reported in the literature, a preoperative diagnosis has been claimed in less than 10 In women who present with a blood-stained vaginal discharge and in whom uterine curettage is negative, carcinoma of the uterine tube should be considered in the differential diagnosis Hydrops tubae profluens is significant but rare Falk in 1898 recommended cul-de-sac puncture in order to withdraw the contents of a carcinomatous tube adherent to the pelvic peritoneum, this method enabled him to be the first to establish the diagnosis preoperatively More recently salpingography has been suggested as a diagnostic procedure, but this is probably almost as dangerous The Papanicolaou technique of smear diagnosis will probably result in the preoperative diagnosis being made more frequently in future The 52-year-old woman, whose history is presented, was hospitalized as an emergency case with a provisional diagnosis of acute appendicitis The abdomen was explored through a right lower paramedian incision Free fluid was present in the peritoneal cavity The appendix was found to be normal, but a large swelling of the right uterine tube was present Right salpingectomy was performed On opening the tube, evidence of recent hemorrhage was found Microscopical examination of an irregular mass at the ampullary end of the tube revealed a poorly differentiated adenocarcinoma of high-grade malignancy Convalescence was uneventful In view of the anaplastic nature of the tumor it was thought that radiotherapy would be of greater benefit than a more extensive operation The whole pelvis was irradiated with a homogeneous dose of 4 000 r, using 4 portals At the last examination, 2½ years after the operation, no evidence of recurrence was found Many other reports comment on the poor prognosis of this disease

Experiences with a New Method of Selective Abdominal Arteriography F Morino, A Tarquini and C Quaglia Chirurg 28 152-155 (April) 1957 (In German) [Berlin]

Realizing the importance of a clear selective visualization of the arterial circulation in the most important abdominal organs, the authors describe a technique for the selective contrast photography of the arteries branching off from the abdominal aorta The technique begins with catheterization of the brachial artery Under local anesthesia, this artery is exposed in the left arm, and, after removing the tunica adventitia for a distance of several centimeters, a small incision is made into the artery between 2 hemostatic ligatures Then a catheter with a curved tip is introduced Under roentgenologic control, it is advanced in the lumen of the brachial artery to the subclavian artery, up to the aortic arch, and along the abdominal aorta beyond the diaphragmatic hiatus

Then if the catheter is advanced slowly in the caudal direction, the tip reaches the ostium of the celiac artery at about the level of the 12th thoracic vertebra When the catheter enters the celiac ostium, there may be a feeling of a sudden resistance, and, roentgenologically, a sudden bending of the catheter tip is seen as it turns in the cranial direction As the catheter, the tip of which should always be directed to the anterior wall of the aorta, advances caudally beyond the trunk of the celiac artery, a new resistance is f at the ostium of the superior mesenteric artery, which normally is located at the level of the first lumbar vertebral interspace More distally, the tip of the laterally directed instrument reaches one of the renal arteries, which because of their width, location, and direction are the easiest to catheterize of all the collateral branches If the ventrally directed catheter is further advanced, the inferior mesenteric artery is reached at the level between the second and third lumbar vertebra The catheterization of this vessel is difficult, because it has about the same caliber as does the catheter, the same is true of the lumbar, the lower diaphragmatic, the adrenal, and the genital arteries

Throughout the entire procedure the catheter is irrigated with sterile physiological solution of heparin, and, after it has been determined that the catheter will enter the desired artery, a few cubic centimeters of a 1% solution of procaine hydrochloride is added for spasmolytic purposes A few minutes later, from 4 to 8 cc of a contrast medium is injected within 2 seconds Roentgenography is begun during the injection of the opaque substance Serial roentgenograms are made if functional data are desired The authors emphasize the advantages of this method, particularly as regards diagnostic possibilities, over the former aortographic methods No serious side-effects were observed, there were no persisting arterial spasms or thromboses due to endothelial injuries of the vascular wall

NEUROLOGY & PSYCHIATRY

Intracranial Aneurysms, Congenital and Acquired Diagnosis, Treatment and Prognosis E N Weaver J Internat Coll Surgeons 27 576-589 (May) 1957 [Chicago]

The author reports on 10 patients with intracranial aneurysms, 5 men and 3 women between the ages of 39 and 65 and a 14-year-old boy and a 14-year-old girl Three of the adult patients had infraclinoid aneurysms of the internal carotid artery occurring in the cavernous sinus, 1 woman had a large ruptured aneurysm of the supraclinoid internal carotid artery, and 1 woman and the boy had aneurysms of the anterior part of the circle of Willis One man had an aneurysm occurring in the peripheral part of the left cerebral artery with sudden rupture producing a hematoma in the left temporal lobe, 1 man had a bleeding aneurysm of the left anterior cerebral artery that produced a hematoma of the left frontal lobe, extending into the ventricle, and 1 man and the girl had arteriovenous aneurysms

Aneurysms of the internal carotid artery below the clinoid, both unruptured and ruptured, can be adequately treated by cervical ligation alone or combined with intracranial clipping, thereby trapping the aneurysm The first patient with this type of aneurysm was treated and cured by ligation of the internal carotid artery The second patient had palsy of the third cranial nerve with pain in the forehead, ligation of the common carotid artery induced temporary relief of pain for 1 week, and clipping of the internal carotid artery resulted in complete relief of pain and palsy The third patient was relieved of her pain by ligation of the common carotid artery, but palsy of the abducens nerve persisted The patient with a large ruptured aneurysm of the supraclinoid internal carotid artery was treated successfully by the trapping method Aneurysms of the circle of Willis, with rupture, are associated with a mortality of 50% or more The incidence of recurrence may vary from 50% to 80% The mortality rate from direct operative attack on the aneurysm is not higher than 20% and definitely lower than the mortality rate among patients who are left untreated Of the 2 patients with this type of aneurysm, 1 in whom the aneurysm ruptured during dissection, with profuse bleeding, died on the first postoperative day In the second patient, the wall of the aneurysm was extremely thin, but it was possible to apply a clip to the neck of the aneurysm and small strips of hammered muscle were wrapped around the aneurysm to reinforce it The postoperative course was uneventful, and the patient was asymptomatic 6 months after the operation

The hematomas were evacuated and the aneurysms removed with good results in the 2 patients with aneurysms of the peripheral portions of the major cerebral vessels Aneurysms of this type are usually not diagnosed before rupture, at which time they produce a subarachnoid hemorrhage and frequently an intracerebral clot The treatment of choice is direct attack on the aneurysm, evacuation of the clot, and clipping of the neck of the aneurysm Cervical ligation is probably of no significant benefit in the treatment of peripheral aneurysms Of the 2 patients with arteriovenous malformations, 1 had a small berry aneurysm over the frontal lobe that was clipped and satisfactorily removed by surgical means The other patient who had an extensive arteriovenous lesion on the left side and whose only symptoms were convulsive seizures was treated conservatively Smaller lesions can be satisfactorily removed surgically, but in many cases the larger lesions are impossible to remove without causing significant increases in the chances of mortality and morbidity Better angiographic technique with a 50% solution of diatrizoate (Hypaque) sodium, used as contrast medium, aided in the diagnosis of the intracranial aneurysmal lesions In about 30 cases of the injection of this contrast medium, some blanching of the face on the side that received the injection was the only complication observed

Postmeningitic Subdural Effusions J M Williams and H Stevens J Internat Coll Surgeons 27 590-594 (May) 1957 [Chicago]

The occurrence of subdural effusions, containing protein in amounts varying from 15 to 2,000 mg per 100 cc, with cell counts of a few to several hundred, usually lymphocytes and crenated red cells, has been reported after bacterial meningitis in 30 to 60% of children with this disease treated at several large pediatric institutions These effusions may result in a survival syndrome" in a bacteriologically cured but neurologically damaged child The presence of subdural effusions is easily recognized by performing bilateral subdural taps through the open fontanel in any child whose clinical response to antibiotic therapy is unsatisfactory Observations in 3 infants, 1 with bacterial meningitis, 1 with viral meningitis, and 1 with a lumbar meningocele, in whom subdural effusions occurred after the repeated withdrawals of 10 to 15 cc of spinal fluid, suggested that such effusions in children may be inadvertently induced by excessive withdrawal of fluid at the time of the diagnostic spinal tap Consequently, the diagnostic spinal punctures were limited to one tap and to a maximum withdrawal of 3 cc of spinal fluid in 27 children with bacterial meningitis admitted to hospital in the course of 8 months During this time only 3 cases of subdural effusions were observed and the incidence of the subdural effusion as a complication after bacterial meningitis thus was decidedly reduced

Guillain Barré Syndrome Treated with ACTH A Lønnum Tidsskr norske lægefor 77 256-257 (March 15) 1957 (In Norwegian) [Oslo]

In the neurological department of the Rikshospital, 2 patients with radiculoneuritis characterized by a rapidly progressive course and respiratory distress were treated with corticotropin Progression of the disease ceased immediately on the start of treatment, and in the course of a few days there was relatively rapid improvement The improvement continued, but slowly It is suggested that corticotropin may influence some pathogenetic factor, for example edema

Stellate Ganglion Block in the Treatment of Cerebral Vascular Accidents D David and E Garda Minerva med 48 665-668 (Feb 28) 1957 (In Italian) [Turin, Italy]

Blockage of the stellate ganglion by injections of pantocaine, novocaine, or xylocaine was carried out in 22 patients with various types of cerebral vascular disease The diagnoses were acute thrombosis (7 cases), chronic thrombosis (4), acute embolism (6), acute hemorrhage (2), chronic hemorrhage (2), and acute vascular spasm (1)

The technique was that of Amyes and Perry (J A M A 142 15-20 [Jan 7] 1950), which the authors prefer as the one least likely to cause difficulties and complications With the patient supine and a cushion under his shoulders so as to extend the neck, a needle is introduced in such a way that, at a depth of about 3 cm, its tip touches the transverse process of the 7th cervical vertebra, it is then retracted about half a centimeter, and aspiration is attempted to make sure that it is not in a vessel, in the pleural cavity, or in the vertebral canal Epinephrine is not used in patients who are old, hypertensive, or have thyrotoxia A successful block is manifested within 20 minutes by enophthalmos, miosis, and other signs of sympathetic paralysis on the injected side The only mishaps, in 100 blocks done by the authors, have been punctures of blood vessels (3 instances) and paresis of the recurrent nerve (1 instance) Improvement or complete recovery followed in 5 out of 7 patients with acute thrombosis, in 3 out of 6 patients with acute embolism, and in 2 out of 4 patients with chronic thrombosis Two of the patients with acute thrombosis, 2 with acute embolism, and 2 with acute hemorrhage were made worse The patient with vascular spasm recovered quickly

The authors believe that the beneficial results they obtained justify the regular use of stellate ganglion block in apoplexy and that the operation is most effective if done early in patients who have been hospitalized promptly after the onset of symptoms

Meningoencephalitis Due to Listeria Monocytogenes T Kahrs and O Weisert Tidsskr norske lægefor 77 252-254 (March 15) 1957 (In Norwegian) [Oslo]

Listeriosis, caused by Listeria monocytogenes, is less frequent in man than in animals The first case in domestic animals was reported in 1931 in New Zealand by Gill, who described an encephalitis-like disease in sheep, which he called "circling disease" The first case of Listeria meningitis in man was described by Dumont and Cotoni in 1921, and the identification of the causative agent was later verified by Paterson Two cases have already been reported in Norway, both with a fulminant course and death in 5 to 7 days The case of grave meningoencephalitis due to L monocytogenes here described occurred in September, 1956, in a truck driver, aged 30, who in the summer had hauled sheep from a district where listeriosis had become established in 3 or 4 flocks, with 12 deaths due to meningoencephalitis having occurred In the vernacular the disease was termed "kring-gaa,' which corresponds to Gill's "circling disease" Possible transmission from animals to man is suggested in this case Complete recovery followed in 6 weeks under combined antibiotic treatment and chemotherapy

GYNECOLOGY & OBSTETRICS

Vitamin B_{12} and Pregnancy M Dumont Presse méd 65 601-602 (March 30) 1957 (In French) [Paris]

Vitamin B_{12} can be assayed by biological methods that are difficult and costly and by the more widely employed microbiologic tests Lactobacillus organisms are used for the microbiologic assay After reviewing vitamin B_{12} assays on gravid animals, the author describes studies on women during pregnancy, delivery, and lactation, on normal and prematurely born infants, and on women with anemias that occurred during pregnancy Vitamin B_{12} deficiency in animals causes disturbances in the reproductive function, such as death of the fetuses, hemorrhagic or degenerative lesions, and malformations Vitamin B_{12} deficiency in pregnant women generally becomes manifest in the 5th or 6th month of pregnancy The assay of vitamin B_{12} in the normal newborn infant is generally higher than that in the mother, except when the mother has had a definite vitamin B_{12} deficiency during pregnancy The placenta is low in vitamin B_{12} content and plays an active role in the transfer of the vitamin only at the end of pregnancy The prematurely born infant often shows a deficiency of vitamin B_{12}, but the administration of this vitamin produces contradictory results in these infants

Maternal hypovitaminosis is the rule during lactation The vitamin B_{12} content is elevated in the colostrum and in the milk in the first several weeks of lactation, and, then, it decreases, but it can be increased by the oral administration of the vitamin to the mother, particularly in combination with cobalt Intramuscular injection of vitamin B_{12} in the mother will effect a more prolonged vitamin increase in the milk Certain forms of megaloblastic anemias in pregnant women can be successfully treated by giving vitamin B_{12}, but treatment with folic acid is sometimes more effective The author recommends the routine administration of vitamin B_{12} to pregnant women, particularly during the last trimester of pregnancy, and to premature infants The standard prophylaxis and treatment of the anemias of pregnancy in France consist of the administration of iron, folic acid, and vitamin B_{12}

PEDIATRICS

The Offspring of Alcoholic Parents G Heuyer, R Mises and J-F Dereux Presse med 65 657-658 (April 10) 1957 (In French) [Paris]

In discussing the influence of alcoholism in the parents on the occurrence of physical and mental defects in their offspring, the authors review the literature on this problem and report their own findings on 100 children, the offspring of parents who were addicted to alcohol These patients were seen in consultation at the neuropsychiatric department of the children's clinic of the Salpetriere The 100 children included 10 with essential epilepsy, 30 with psychomotor disturbances, and 60 with behavior problems Of this last group, about 20 had psychomotor instability, whereas, in the other 40, the troubles appeared to be related to affective difficulties, in the form of either existing conflicts or sequels of earlier disturbances

After discussing the theories that have been advanced with regard to the heredity of alcoholism and the present concepts on this problem the authors conclude that the concept of hereditary alcoholism, allied with the theory of degeneracy should be rejected Although children born of parents addicted to alcohol show a rather high incidence of psychopathic manifestations, genetic factors were thought to be of much less importance than are defective training and social, economic, and familial disturbances

INDUSTRIAL MEDICINE

An Outbreak of Tri ortho cresyl Phosphate (T O C P) Poisoning in Durban M Susser and Z Stein Brit J Indust Med 14 111-120 (April) 1957 [London]

Triorthocresyl phosphate (T O C P) is an organic phosphorus compound, commonly used in industry as a plasticizer In the United States a poisoning with the compound occurred in 10,000 to 15,000 people during prohibition Several hundred women in Europe were poisoned by the compound in 1931 by an apiol pill, taken as an abortifacient An outbreak of poisoning with triorthocresyl phosphate that occurred in Durban, South Africa, in 1955, involved 11 natives, ranging from 7 to 46 years of age In addition to these, 4 other patients in a white family, who had been poisoned in Durban in 1937-1938, could be reexamined The clinical findings, including a delayed flaccid paralysis with subsequent upper motor neuron signs, was a reliable guide to diagnosis Swelling of the parotid glands was reported for the first time in 1955 The 1-month-old baby, living in the same shack as the patients, as well as the 14-month old baby of the white family were not affected This suggests that infants resist demyelination, perhaps because the long tracts of the spinal cord are not completely myelinated According to some clinicians, the severity of the lesions is not proportional to the dose, as the individual susceptibility varies From the epidemiologic study of the outbreak in 1955, it is suggested that water as well as lipids and alcohol may be a vehicle for the poison, either in solution or in suspension or both

The outbreak of 1955 is the first to be reported in relation to the industrial use of the compound as a plasticizer, the necessity for precaution in industry is emphasized Family, social, and occupational factors are important in diagnosis A follow-up after 18 years on 4 patients who had poisoning due to the compound showed that disability may be permanent No known treatment has any specific effect, and the measures are limited to necessary physical and moral support

RADIOLOGY

A Clinical Study of Radiation Cataracts and the Relationship to Dose G R Merriam Jr and E F Focht Am J Roentgenol 77 759-785 (May) 1957 [Springfield, Ill]

Radiation cataracts developed in 100 of 173 patients, 89 male and 84 female, between the ages of 4 weeks and 84 years, who had been irradiated for hemangiomas of the lids, orbit, cheek, and mouth and for various types of carcinoma of the lids, eye, nose, nasopharynx, sinuses, cheeks, palate, and gum The amount of radiation to the lens was measured with the aid of a specially devised phantom skull The patients were divided in 3 groups, the first included patients who had received their irradiation in a single treatment, the second was comprised of patients who were given divided treatment over a period of 3 weeks to 3 months, and the third group included those who were given divided treatment for periods of more than 3 months The minimum cataractogenic dose for each group was 200 r, 400 r, and 550 r respectively

The incidence of cataracts in the group of patients treated for 3 weeks to 3 months suggested that if a dose of 750 to 950 r were delivered to a lens within such a period there would be about a 60% probability that a cataract would develop and about a 50% chance that it would be progressive with a corresponding loss of vision Cataracts developed in all patients who re ceived more than 1,150 r to the lens, irrespective of the duration of treatment The 100% incidence level occurred at the lowest dose for the group of patients who received a single treatment In the patients with multiple treatment, the longer the duration of treatment the lower was the incidence at a given dosage range below 1,150 r When the effect of dose and varying treatment times on the time of onset and progression of cataracts was considered, it appeared that the higher the dose for a given duration of treatment, the shorter the time of appearance of the lens changes and the higher the incidence of progressive opacities In general, fractionation delayed the time of onset of cataracts and resulted in fewer severe opacities The lenses of children under 1 year of age appeared to be more sensitive to irradiation than those of older children and adults

The usual shielding methods are ample protection for the lens from x-rays of 100 to 140 kv (half-value layer 1 to 5 mm Al) When higher voltages are used (200 to 250 kv half-value layer 1 to 2 mm cu), 2 mm Pb will usually suffice for the tumor doses currently used With the lower doses being used at present and with care in positioning the ports, radiation cataracts will be seen less frequently in patients with retinoblastoma In these patients radiation cataracts are of necessity a calculated risk It is estimated that by the use of current treatment techniques the lens opacities could have been prevented in at least 80 of the 100 patients

Dangers in Ionizing Radiation and Possibility of Protection A J Therkelsen Ugesk laeger 119 323-328 (March 14) 1957 (In Danish) [Copenhagen]

Recent investigations point to the dangers in medical application of roentgen rays, partly the danger of the development of leukemia and cancer, partly the dangers of genetic kind The conclusion is that there is no doubt as to the leukemogenic effect in man and that until further investigations have been carried out even the small doses applied in diagnostic radiation of mothers during pregnancy must be considered as increasing the danger of leukemia in the offspring With regard to genetic side-effects the greatest risk at present arises from the constantly increasing application of roentgen rays for diagnostic purposes

Radiation Sialitis Following Radioiodine Therapy A W G Goolden, J R Mallard and H E A Farran Brit J Radiol 30 210-212 (April) 1957 [London]

The authors present the histories of 2 patients in whom sialitis developed after radioactive iodine (I^{131}) had been given for the treatment of thyroid carcinoma Sialitis was confined to the submandibular glands in one patient, while in the other both submandibular and parotid glands were involved Attempts were made to estimate the radiation dose that may have been received by the salivary glands of these patients In 1 patient a tracer dose of 100 μc of I^{131} was given intravenously 3 months after he had received the second therapeutic dose Samples of blood and of freshly secreted mixed oral saliva were collected simultaneously during the 5 hours immediately after the administration of the tracer dose The I^{131} content of the plasma and of the saliva were measured with a scintillation counter and the ratio of concentration of I^{131} in the saliva to that in the plasma was determined, in the other patient this was done after a third therapeutic dose The authors found records of 2 other patients in whom sialitis resulted from the use of I^{131}, and they mention investigators who observed that salivary function as measured by the level of salivary amylase was temporarily suppressed after therapeutic doses of this isotope Futhermore, patients undergoing treatment for malignant disease of the mouth with roentgen rays of teleradium therapy almost invariably suffer from dryness of the mouth if both parotid glands are irradiated at dosage levels of the order of 500 to 1000 r

PUBLIC HEALTH

Effects of Air Re-circulation on Bacterial Pollution in Hospital Wards D M Forsyth Tr Roy Soc Trop Med & Hyg 51 163-168 (March) 1957 [London]

In Kuwait, Arabia, maximum temperatures in the shade during summer of over 115 F are the rule and 120 F is often exceeded The relative humidity is usually less than 10% at noon Some form of cooling is desirable for the well-being of hospital patients, and the method adopted is that of continuously circulating a closed atmosphere over chilled water pipes The air eventually becomes stale and malodorous, and, in order to counteract this by fresh air change, it is the custom for the night nurse to open up all the windows for about an hour during the coolest part of the early morning As it was thought that the continuous recirculation of the same atmosphere would lead to an increase in its bacterial content, an investigation was carried out in fully occupied wards Simple sedimentation techniques and later the slit sampler were used to determine the effects of bacterial pollution of recirculating a closed atmosphere It appeared that simple “comfort cooling or recirculation caused no increase in the number of organisms in the air, provided dust production was small, i e , in normal or quiet conditions When dust production inside a ward was maximal e g , during dusting and bed-making, the mechanical recirculation of the air produced an increase in the bacterial contamination of the atmosphere Therefore, when the method of ward cooling is that of simply recirculating a closed atmosphere over chilled water pipes, bed-making and such activities should take place when all doors and windows in the ward are being kept open This will also allow the escape of stale air laden with body odors Alternatively, floors, blankets, and linen could be oiled and other measures taken, as recommended in the Medical Research Council War Memorandum No 11 It is debatable if it is justifiable to install expensive and elaborate apparatus with air washers and filters in hospital wards when simple recirculation is cheap and safe

BOOK REVIEWS

The Practice of Medicine Editor Jonathan Campbell Meakins, C B E, M D, LL D Sixth edition Cloth $16 Pp 1916, with 318 illustrations C V Mosby Company, 3207 Washington Blvd, St Louis 3, 1956

The editor of this volume is a distinguished clinician and teacher The task confronting him has grown enormously in the 20 years since he published his first edition of this work The gains constantly being made in the basic medical sciences as well as in clinical medicine must represent a psychological barrier of no mean magnitude to an editor The result is the fruition of monumental labor and of a love for the subject This heavy book has many of the virtues and faults inherent in any compendium attempting to encompass the whole field of medicine, including neurology The quality of clinical judgment, quantity of factual material, and the elegance of presentation vary from section to section In some of the most rapidly expanding medical fields, the book is already partially outmoded For instance, the excellent section on the chemotherapy of infection contains no bibliographical reference after 1953, except for an obviously erroneous reference on page 587 to an article published in 1959 The editor has wisely permitted his associate editors wide latitude in preparing their respective sections One of the best sections is that on diseases due to viruses All but 4 of the 25 chapters were written with great unity and clarity by one person Happily, this clarity was well matched by the other three contributors

On the other hand, the section on diseases of the heart and pericardium illustrates some of the perils of multiple authorship It is somewhat unbalanced with overemphasis on instrumentation at the expense of clinical findings Within these two categories there is a lack of a sense of the fitness of things with respect to the proper purposes of a text of this kind The chapter on electrocardiography is too esoteric for undergraduate medical students Although the author devotes several pages to the fundamentals of electrocardiography, he fails to give the reader any range of values for the normal electrocardiogram The section on heart disease has a somewhat different organization than that of the rest of the book It begins with a chapter on cardiac symptoms that includes a subsection on palpitation In the latter, no mention is made of the fact that palpitation can be sudden or gradual in onset and cessation and that it is important for the student or practitioner to determine which type his patient has He thus may be able to distinguish between a paroxysmal disturbance of the heart rhythm and sinus tachycardia In the chapter on cardiac arrhythmia where paroxysmal sinus tachycardia is described, there appears to be unqualified acceptance of the psychoanalytic interpretation of the background for this rhythm On page 928 this sentence occurs "It is a panic over this fantasy (of homicide) which can precipitate in predisposed individuals attacks of paroxysmal sinus tachycardia with repression of the antecedent affect and fantasy' In discussing the therapy of cardiac disorders, the book errs in two important ways, one of commission and one of omission It is suggested that digitalis dosage be based on the patient's body weight, a technique long since discarded No mention is made of the extremely wide range from patient to patient of the digitalizing dosage or of the effective maintenance dosage requirement The admittedly controversial question of long term prophylactic anticoagulant therapy is not presented Anticoagulants are not recommended in the treatment of pulmonary emboli occurring as a complication of congestive heart failure

The sections on diseases of the ductless glands and of the gastrointestinal tract deserve special mention for clarity, sound judgment (including a provacative lack of dogmatism), and excellent illustrations The final section on psychosomatic aspects of medicine exhibits rare common sense in this field The index is more than adequate This is especially important in a textbook of medicine Physical make-up of the book is unusually good, only one typographical error, other than the one mentioned above, was found This volume can be recommended, with only minor reservations, to medical students and practitioners

Spinal Cord Compression Mechanism of Paralysis and Treatment By I M Tarlov, M D, Professor of Neurology and Neurosurgery, New York Medical College, New York Cloth $7 50 Pp 147, with 41 illustrations Charles C Thomas, Publisher, 301-327 E Lawrence Ave, Springfield Ill, Blackwell Scientific Publications, 24-25 Broad St, Oxford, England, Ryerson Press, 299 Queen St, W, Toronto 2B, Canada, 1957

This monograph on spinal-cord compression is by a neurosurgeon who has done much experimental work on the subject The first section is devoted to the description of studies in dogs in which spinal cord and cauda equina compression is produced by a balloon inserted into the extradural space The effects of acute and gradual compression are described The functional changes are correlated with histopathological changes in the spinal cord The second section of the book discusses symptoms, therapy, and prognosis of spinal paralysis in man caused by trauma and by tumor The third section is concerned with the early management of patients with acute transverse lesions of the cord as result of trauma The material is presented in an orderly fashion The format of the book is good The illustrations are pertinent and clearly reproduced The author's conclusion that compression of spinal vessels does not play a significant role in the pathogenesis of acute transverse lesions of the spinal cord that may develop in patients with tumors is open to question The author concludes from his experi

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These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated

ments in dogs that the cord injury is always the result of compression of the cord substances He ignores the fact that acute transverse myelitis may develop in patients with metastatic carcinoma or lymphomatous tumors of the spine without any evidence of compression of the cord as determined by myelography, operation, or necropsy The monograph should be of particular interest to neurologists and neurosurgeons The detailed description of the early management of acute traumatic lesions of the spinal cord should be of great value to the general surgeon who may be responsible for the care of such patients

Diabetes Mellitus With Emphasis on Children and Young Adults By T S Danowski, B A, M D Cloth $13 50 Pp 510, with illustrations Williams & Wilkins Company, Mount Royal and Guilford Aves, Baltimore 2, 1957

This is a unique book on diabetes mellitus In contrast to the usual approach to the subject, the emphasis is on the biochemical and hormonal aspects of the disease In the first of three sections the author gives a thorough, modern review of experimental diabetes and the interaction of the endocrine glands in glucose metabolism References are complete and the brief summaries at the end of each chapter are valuable The second section is a collection of more practical data Drawing heavily on his own observations, the author considers the magnitude of the diabetic problem, particularly the juvenile form He includes valuable sections on interpretation of the glucose tolerance curve, renal glycosuria, and the electrolyte changes accompanying insulin and glucose administration Glucagon and epinephrine are briefly discussed Therapy of diabetes is considered, with emphasis on the metabolic effects of insulin administration The highlight of the final section, which is otherwise a loosely-connected collection of observations on diabetes mellitus, is the consideration of diabetic acidosis and its management Lucid explanation of the electrolyte changes attests to the author's well-known proficiency in acid-base balance Diabetes in older age groups and the vascular complications are given only token consideration Practical aspects of routine diabetic care (patient education, insulin timing, and management through surgery) are briefly discussed but not stressed In spite of these minor objections, this book is a valuable contribution It should be particularly enjoyed by students of abnormal carbohydrate metabolism

Basic Foundations of Isotope Technique for Technicians Edited by Willard C Smullen M D F A C R Radiologist in Charge, St Mary's Hospital, Decatur, Ill Cloth $4 75 Pp 163, with illustrations Charles C Thomas, Publisher 301-327 E Lawrence Ave, Springfield Ill, Blackwell Scientific Publications, 24-25 Broad St, Oxford, England Ryerson Press, 299 Queen St, W, Toronto 2B Canada 1956

As an introduction to isotope procedure for technicians, this book serves a definite purpose The editor noted that "no attempt is made to explore the technical intricacies of our subject" Only the basic fundamentals of isotope techniques are described after introductory chapters on the physical foundations, measuring instruments, and protection The material is presented simply, being aimed for the use of those who are beginners in the use of radioisotopes but who are acquainted with the more usual laboratory procedures It is not intended for radiologists or others who have already been trained in or have worked with isotopes Several bibliographies are included with the aim of tempting further study, once the groundwork is accomplished As is usual with first editions, typographical errors appear Misspellings of such words as Hurthle and desiccate should be easy to correct in subsequent printings This book is recommended for technicians and beginners in radioisotope work

Gifford's Textbook of Ophthalmology By Francis Heed Adler, M D, William F Norris and George E Deschweinitz, Professor of Ophthalmology, University of Pennsylvania Medical School Philadelphia Sixth edition Cloth $8 Pp 499, with 303 illustrations W B Saunders Company, 218 W Washington Sq, Philadelphia 5, 7 Grape St, Shaftesbury Ave, London, W C 2 England, 1957

This new edition is the third to appear under the auspices of Francis H Adler This textbook has become the principal contender with May's "Diseases of the Eye," now being edited by Charles A Perera, for first honors in its field This book is slightly larger than May's, which makes for somewhat more laborious reading by the hard-pressed undergraduate but possibly offers some slight advantage as a reference work for the nonophthalmologist and as an introductory treatise for the neophyte in ophthalmology The present edition omits some extraneous material, condenses certain chapters, and adds a chapter on the emergency treatment of ocular injuries While the latter has increased the size of the book by a few pages, it is a most valuable addition The style of writing is smooth, concise, and readily understandable The author has exercised thoughtful discrimination in the selection of his material and in the simplicity and accuracy of its presentation The illustrations, many in color, have been selected carefully from a wide variety of sources This new edition should continue to find wide acceptance

Connective Tissue in Health and Disease Edited by G Asboe-Hansen, M D Cloth $15 Pp 321, with illustrations Philosophical Library, Inc, 15 E 40th St, New York 16, Ejnar Munksgaards Forlag Nørregade 6, Copenhagen K, Denmark, 1957

Twenty-three contributors from various parts of the world present their views on the timely subject of this book The editor is director of the Connective Research Laboratory, University Institute of Medical Anatomy, Copenhagen This volume brings together, under one cover, the present knowledge of connective tissue in its various phases It covers such aspects as the morphology, chemistry, and pathology of connective tissue At the end of each paper there is a complete bibliography The subject matter is well illustrated Although the book has many contributors, its style is cohesive and easy to read This is an authoritative book on a vital subject, and it should be of great value to all students of connective tissue, in particular, and to the medical profession, in general

QUERIES AND MINOR NOTES

VARIOUS ROUTES OF IMMUNIZATION

To the Editor —*What is the present attitude toward the efficacy of various routes of immunization, whether intracutaneous, subcutaneous, or intramuscular? If tetanus toxoid, 0 5 cc, is given as a routine booster intramuscularly and the same immunization is given by the intracutaneous or subcutaneous route, what would the latter dose be? Is the intracutaneous or the subcutaneous route just as effective as the intramuscular? Is it true that the allergic factor is reduced and that there is less reaction?* *Martin Karr, M D , San Mateo, Calif*

Answer —The efficacy of immunization after intracutaneous injection of the antigen was first demonstrated by Tuft in 1931 with typhoid vaccine In an experimental study (Tuft, Yagle, and Rogers *J Infect Dis* 50 98, 1932) comparing the antibody responses which followed the administration of typhoid vaccine after intramuscular, subcutaneous, intracutaneous, and oral administrations, it was shown that the antibody response after intracutaneous injections of one-tenth the dose (0 1 cc) was equal to that after a dose of 1 0 cc injected intramuscularly and was better than that after either subcutaneous or oral administration Upon the basis of these results, Tuft (*J Lab & Clin Med* 16 552, 1931) employed the intracutaneous method for immunization with typhoid vaccine with doses of 0 1, 0 15, and 0 2 cc at weekly intervals He showed not only that satisfactory antibody titers comparable with those induced by the usual intramuscular route followed but, more important, that there were much fewer reactions compared with those after the intramuscular route, even those which occurred were local rather than constitutional in nature

In a later report, Tuft (*Am J M Sc* 199 84, 1940) demonstrated that a single intracutaneous reinjection of 0 1 cc of the vaccine produced satisfactory antibody response in a previously immunized individual He recommended, therefore, that a single dose of 0 1 cc be given intracutaneously as a booster dose at three-year intervals because of the minimal reaction which follows This method of reimmunization has been accepted and is utilized by the armed forces for its military personnel

Since these demonstrations the intracutaneous method of administration has been employed successfully with many other antigens both in man and animals, e g, diphtheria toxoid (Kern, Crump, and Cope *J Allergy* 6 525, 1935), scarlet fever Streptococcus toxin (Kern, Crump, Roddy, and Borow *J Allergy* 9 125, 1938), bacterial vaccines in asthma therapy (Tuft and Ermilio *J Pediat* 48 569, 1956), and pollen desensitization The dose employed in all these instances for intracutaneous use usually was one-fifth to one tenth that employed for either intramuscular or subcutaneous administration, the dose for the latter being equal to that for the former Aside from the satisfactory antibody response which follows intracutaneous injection, the great advantage of this method of administration, regardless of the antigen employed, is the markedly diminished tendency to constitutional reactions By observing the degree of local reaction directly on the skin, it also is possible better to regulate subsequent injections than if the injection is given intramuscularly or subcutaneously

So far as this consultant knows, the intracutaneous method of administration has not been used for tetanus toxoid either routinely or as a booster dose, probably because reactions to the latter are extremely rare If this method is utilized, the dose would be either 0 05 cc or 0 1 cc administered intracutaneously The dose of the tetanus toxoid when given subcutaneously is the same as that employed for intramuscular use

DIFFERENTIAL DIAGNOSIS IN CHOREA

To the Editor —*Could the following case history be considered consistent with the diagnosis of prolonged Sydenham's chorea? A 55-year-old woman, born in Russia, was known to have had a severe high fever at the age of 12, while in Europe, that was treated with salicylates and "ice baths" It was apparently not followed by a cardiac murmur at that time When she was 18 years old, involuntary jerky movements and facial grimacing appeared and persisted, with only brief periods of intermittent improvement until the present time The movements have gradually become worse Her other history consisted of rectal polyp, removed some years ago, and a possible bout of pneumonia during her adulthood Her family history indicates no mental and neurological disorders On physical examination her neurological survey was as follows Her sensorium and orientation are intact She has no intellectual impairment There are coarse movements of purposeless character of her head, shoulders, trunk, and, to a lesser extent, of her upper extremities The head is thrown about in all directions Her cranial nerves are intact The fundi are normal, and deep reflexes are diminished and equal There are no pathological reflexes and no clonus Her sensation is intact When she is emotionally upset at the time of examinations and at other times the movements are worse During sleep she was observed to be quiet During her hospital stay a few months ago she had a persistent regular tachycardia interpreted on the electrocardiogram as a sinus tachycardia Her radioactive iodine uptake was normal, so that she was given digitalis and phenobarbital After her heart rate returned to normal a distinct systolic murmur was heard in the mitral area and a split second sound was noted*

The answers here published have been prepared by competent authorities They do not, however, represent the opinions of any medical or other organization unless specifically so stated in the reply Anonymous communications and queries on postal cards cannot be answered Every letter must contain the writer's name and address but these will be omitted on request

At this time, her hemic component was normal but her erythrocyte sedimentation rate was elevated and her C-reactive protein level was elevated once and normal twice Her venous pressure and circulation time were normal Her esophogram showed backward displacement and compression at the region of the left auricle Another observer during a previous recent hospital admission, one month before, heard a definite presystolic murmur at the apex accompanied by an accentuated first mitral sound, and the second pulmonic sound was greater than the second aortic sound In view of these findings, a diagnosis of rheumatic heart disease in addition to chorea was made

Arthur M Parker, M D , Brooklyn, N Y

Answer —This case is apparently one of Sydenham's chorea, since its onset is early in life, there is no history of chorea in the family, and there is no story of progressive intellectual deterioration Both Huntington's and Sydenham's chorea are diseases of the extrapyramidal tracts The integrity of the pyramidal tracts is intact, so that motor paresis or hypotonia is present in the afflicted limbs

The differential diagnosis of these two types of chorea is based upon these important factors Sydenham's chorea always occurs in children or adolescents Huntington's is always hereditary and is a disease of middle life Generally, Sydenham's chorea is self-limiting—although there may be residual tics or habit spasms as a sequel Huntington's chorea is a chronic chorea that is invariably associated with progressive dementia The choreic movements are rather typical, affecting face, soft palate, trunk, limbs, and occasionally the muscles of respiration There are abrupt movements, irregular, involuntary, asymmetric, purposeless, and unrestrained Most frequently the movements cease in sleep Emotional stimuli and sudden noise tend to increase the movements

Sydenham's chorea is also known as infectious chorea, "St Vitus' dance," and rheumatic chorea It is not necessary to have a heart murmur present at the time of the acute onset—and many children with Sydenham's chorea never demonstrate heart disease In this case the Sydenham s chorea is probably on the basis of rheumatic disease, although the cause may in other cases be encephalitis It is this consultant's opinion that this is a case of Sydenham's chorea, rheumatic type

INFLUENZA

To the Editor —*What are the biological differences between virus A and virus B influenza, and how many recorded deaths, in the United States, were were there in the 1918 epidemic?*

Emil J Alban, M D , Torrington, Conn

Answer —Influenza viruses A and B cannot be distinguished from each other on the basis of their morphology, on their growth in allantoic fluid of chick embryos, or on other cultural characteristics Determination of these types can be made by the complement-fixation test, but strain differences within each type can be determined only by hemagglutination inhibition tests In 1918 there were 464,359 deaths from influenza and pneumonia in 33 death registration states, and in 1919 there were 185,440 These figures included deaths in Army, Navy, and Marine Corps personnel located in the registration states No data are available for either civilian or military populations in the remaining states, but it is estimated that there were at least half million deaths from September, 1918, to March, 1919, during which time the epidemic was most severe

BLOOD DONATION FROM PATIENT WITH LEUKEMIA

To the Editor —*A patient was stricken with acute leukemia and after two weeks of intensive treatment succumbed to the disease About six weeks previous to the time that he began to experience symptoms, and while he was still apparently well, he donated a pint of blood to the Red Cross Was the donated blood of any danger to a recipient? How long before symptoms develop might pathological findings be picked up in a blood cell count?*

A L Feuer, M D , Gastonia, N C

This inquiry has been referred to two consultants, whose respective replies follow —Ed

Answer —No doubt many physicians have shared the misgivings of the inquirer and wondered whether a blood donor with undiagnosed leukemia might not transmit his disease to the recipient Actually there appears to be no need for concern regarding this possibility, since deliberate attempts to transmit leukemia in man have been unsuccessful, and, despite the millions of transfusions given a year in this country alone, there is no recorded instance of transmission of leukemia by a blood transfusion

The transmission of leukemia is a problem related to tumor and organ transplantation and skin grafting As is well known, transplants of organs and grafts of skin from one human individual to another will take at first but survive only temporarily Such grafts die even when the donor and recipient are close blood relatives, except in the case of identical twins The destruction of the transplanted organ or tissue appears to depend on an immune reaction of the host to foreign antigens in the transplanted cells The same applies to the transmission of leukemia, because the transfused blood cells must survive and multiply in the body of the recipient if the disease is to develop Skin and organ transplantation has been successful when the recipient is incapable of an immune response, as in individuals with agammaglobulinemia or in experimental animals subjected to adequate doses of x-ray and/or cortisone

In animal experiments, tumors and leukemia are readily transmitted from one mouse to another within the same inbred strain Such inbred strains are produced by brother-sister matings over numerous generations, until eventually every member of the strain is virtually identical genetically, like human identical twins When tumors or leukemia are transplanted to a mouse of a different strain, the transplants, which grow at first, die, and after the tumor is cast off, antibodies against antigens in the red blood cells of the donor mouse not infrequently appear in the recipient's serum A condition for successful transmission of leukemia is that the cells injected be viable Since for blood transfusions in man the bank blood is at present generally used, and since leukocytes survive for only a short time outside the body, this is another reason why up to now leukemia has apparently never been transmitted by transfusion

No authoritative information is available regarding how long pathological findings may be picked up in a blood cell count before symptoms of leukemia develop However, it is not an infrequent experience that a patient being investigated for some other complaint is discovered to have chronic myeloid or lymphoid leukemia by the blood cell count Since, especially in elderly persons, chronic leukemia may be a relatively mild disease, so that these persons have been known to live 15 to 20 years, it is evident that the hematological findings in the chronic form of the disease mav be present for years before symptoms develop Obviously, in acute leukemia, where the entire course of the disease may last only 3 to 12 months, this statement would not hold

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Forkner, C E Leukemia and Allied Disorders, New York, The Macmillan Company, 1938

Wiener A S Blood Groups and Transfusion, ed 3, Springfield, Ill , Charles C Thomas, Publisher, 1943

Answer —There is no evidence that blood from a patient with leukemia, when transfused into another patient, will result in transmission of this disease Attempts to transmit leukemia experimentally from one human to another have failed Transfer of this disease in animals has been achieved between members of the same inbred strain and under very special conditions when host and recipient belong to different strains Such conditions hardly would be encountered among human beings Chronic forms of leukemia have been diagnosed not infrequently from routine blood cell counts months and years before the patients became symptomatic A similar lag between hematological changes and symptoms is not likely

SMALL DOSES OF AN ANTIBIOTIC

To the Editor —*Is it considered good therapy in the case of an adult with a respiratory infection, such as chronic sinusitis or bronchitis, to give 62 5 mg of tetracycline every four hours? What about the use of tetracycline in an acute infection in an adult? What is considered adequate antibiotic therapy in the cases cited above?* *M D , Maryland*

This inquiry has been referred to two consultants, whose respective replies follow —Ed

Answer —The use of such small doses of tetracycline in an adult would not be advisable for treatment of an acute bacterial infection However, only a small minority of acute respiratory infections are bacterial, most are viral infections in which the antibiotic would have no therapeutic effect Chronic bronchitis is not primarily an infection but is usually due to inhaled irritants Secondary infection is usually present, however, and some authorities employ small doses of antibiotics in these cases

There is serious objection to the use of the wide spectrum antibiotics for this purpose It has been shown by Weinstein in tracheotomized patients that use of these agents does not prevent infections, and the infections which develop are serious ones, with drug resistant organisms, such as the Proteus and Pseudomonas organisms Penicillin is to be preferred for prolonged use in treatment of chronic infections because its narrower spectrum of antimicrobial activity is a virtue in these circumstances Infections which develop while a small daily dose of penicillin is taken will, as a rule, be responsive to tetracycline and other wide-spectrum antibiotics in dosage of 250 mg two to four times daily for a week

Answer —The administration of 62 5 mg of tetracycline every four hours in an adult with a respiratory infection cannot be considered as a rational or adequate form of therapy Unless there is evidence that the infection to be treated is due to an organism sensitive to tetracycline, this or other antibiotics should not be promiscuously used Most upper respiratory infections are viral in origin, and there is no evidence that they respond to these agents The use of simpler and potentially less harmful agents would satisfactorily control symptoms and would entail less chance of undesirable side-effects Assuming however, that the infection was susceptible to tetracycline, one should use adequate doses in order to properly control the infection, and the dosage indicated is inadequate for this purpose A dose of 250 mg every six hours would be considered adequate and should be used where indicated

EXCESSIVE X-RAY THERAPY TO THE SKIN

To the Editor —*What are the prophylaxis and treatment in the case of a patient who received too large a dosage of x-ray therapy for a seborrheic type of facial dermatitis four years ago?*

M A Wuerschmidt, M D , Oswego, N Y

Answer —The question is very vague There is not enough information given regarding the degree of radiodermatitis, nor is there any information given regarding the dosage of x-rays received to the face This is important because, if the x-ray therapy was given four years ago and the dosage was in excess of what the skin could tolerate, then by this time there should be definite radiation changes The amount of radiation changes depends upon the amount of radiation which was received four years ago The treatment therefore depends upon the amount of radiation damage which is present now From the query it is assumed that the radiation changes are minimal at the present time, otherwise, the word "prophylaxis" would not have been used If the radiation changes are minimal, then, of course, the best thing to do to prevent further damage to the irradiated skin is to protect the skin in every way possible by applying emollients at night, these emollients include cold cream or petrola tum or even ointments containing both vitamins A and D There is no specific topical remedy that can be applied to the face which would cure radiodermatitis or which would prevent radiodermatitis if a dosage of radiation is given in excess of what the skin can tolerate

In addition to using emollients, the patient who has been irradiated should avoid exposure to ultraviolet rays, both natural and artificial Sun bathing is bad for such an individual If he does go out in the sun, then he should apply a sun-protective preparation, there are many such "sun screeners" on the market It is preferable that a greasy sun screener be applied rather than a sun screener whose base is greaseless Exposure to extremes of temperature should be avoided Going out in the cold wind tends to make a person who has been irradiated have a tender skin The cold wind might even cause fissures to occur on such a skin Of course, such a person should not have any further radiation Even the taking of dental films should be kept down to an absolute minimum If the radiation damage is severe, plastic surgery and skin grafting may have to be resorted to Perhaps the simplest solution to a problem like this is to obtain the advice of a local dermatologist

RECTAL ADMINISTRATION OF AMINOPHYLLINE FOR ASTHMA

To the Editor —*In the treatment of bronchial asthma in a 10-year-old girl, due to tree or grass pollens, is the use of rectally administered aminophylline suppositories dangerous? If not, what preparations and what dosage would be advisable? Would the early use of orally administered antihistaminics be in any way contraindicated?*

Leo M Smith, M D , Stamford, Conn

This inquiry has been referred to two consultants, whose respective replies follow —Ed

Answer —Aminophylline suppositories are not dangerous if used properly The mistakes which are sometimes made are (1) too large dosage and (2) too frequent dosage A reasonable dose for a 10-year-old girl is one child's size suppository containing 3¾ grains (0 24 Gm) of aminophylline A good rule to follow is approximately 1/20 grain (3 mg) per pound of body weight Aminophylline suppositories should not be given more than twice in 24 hours

Antihistaminics would not be contraindicated, but, as a rule, they are of little value in cases of asthma and work in only about 1 case out of 20

Answer —Aminophylline suppositories as administered under these circumstances are not dangerous There appears to be no contraindication to rectal aminophylline therapy beyond the age of 3 or 4 years, particularly for short periods as during the early pollen seasons

Dosage should be kept within that associated with nausea or excitement Suppositories containing 3¾ grains (0 24 Gm) administered up to twice daily are usually tolerated Reported dangers in the use of aminophylline rectally have largely occurred in children under the age of 4 years, in whom treatment has been continued in larger than the above dosage or despite the development of nausea or excitement An idiosyncrasy or allergic-type reaction is of rare occurrence

Oral therapy with antihistaminics affords little relief of bronchial asthma Also, sensitization-like reactions are relatively common in patients clinically intolerant to other synthetic drugs or to combustion products of coal, oil, or gas and certain similarly derived materials

NYMPHOMANIA

To the Editor —*What are the peripheral or organic causes of nymphomania? Is there any hormonal treatment of nymphomania that is accentuated premenstrually?*

M D , New York

This inquiry has been referred to two consultants, whose respective replies follow —Ed

Answer —The most common peripheral organic cause of nymphomania is an enlarged or hypertrophied clitoris, a condition present for example in the adrenogenital syndrome Any irritative lesion in the vaginal area may also lead to nymphomania There is no known hormonal treatment for nymphomania that is accentuated premenstrually

Answer —Nymphomania, or hypersexuality in women, is primarily an emotional illness and is a behavioral manifestation of an infantile, immature personality Nymphomania is usually considered to be symptomatic of a deep-seated neurosis in which the individual is unable to obtain satisfaction from normal sexual intercourse Thus, deprived of real satisfaction, nymphomaniacs strive time and again to obtain pleasure from genital activity The normal person, by contrast, loses intense sexual desire when the act of sexual intercourse is completed and does not need to repeat the performance excessively

There are no known organic causes per se of nymphomania However, it may occur rarely as a form of regressive behavior in chronic brain syndrome due to diffuse cortical disease Any patient who undergoes a change in personality or character, particularly when sexual discretions are disregarded or sexual activity becomes excessive, should be suspected of having organic brain disease These patients warrant a complete neurological examination There is no conclusive evidence that drugs or hormones, particularly the androgens, can cure or significantly alter nymphomaniacal behavior

SURGICAL SCRUB SINKS

To the Editor —*In many hospitals it is the custom for personnel in anesthesiology to take the mask and the tubing from the machine at the close of anesthetization to the scrub sinks, where the surgeons scrub up for operations, using the soap from the dispenser and the running water to wash this equipment and allowing the soap and material rinsed from the masks to run down the drain Since all are concerned about the possibility of pathogenic organisms* *in the nasopharyngeal secretions of not only the operating-room personnel but also the patients, can the use of surgical scrub sinks for cleansing anesthetic equipment be considered good practice?*

M D, Illinois

Answer —The practice of washing equipment used in anesthetization in the scrub sinks is surely to be condemned There is no excuse for following this practice, nor is there any excuse for surgeons opening the lower part of the intestine in the sink, as is the case in so many hospitals Scrub sinks should be used for scrubbing the hands and arms of the operating-room personnel and for nothing else

SHELLFISH IN THE LOW-CHOLESTEROL DIET

To the Editor —*The statement has been made that shellfish contain large amounts of cholesterol-like substances, however, it is uncertain whether these substances are cholesterol or whether they are another sterol which would not be restricted from this diet What then is the present status of shellfish in the low-cholesterol diet?*

A J Freiburger, M D, Carlsbad, Calif

Answer —At the present time the low-cholesterol diet has little practical significance The amount of cholesterol in the body is not dependent upon the amount of cholesterol ingested Cholesterol is formed in intermediary metabolism from many substances, and any dietary constituent, even carbohydrate, may act as its precursor

Apparently shellfish, such as oysters and clams, contain a sterol other than cholesterol (Bergmann and Low *J Organic Chem* 12 67, 1947) These authors report that there is a C_{28} sterol called ostreasterol present in shellfish It might be pointed out that the fat content of shellfish is of the order of 1 to 2%, and these foods could easily be included in a restricted fat diet

REPORTING SMALLPOX VACCINATIONS

To the Editor —*Please discuss the preferable terminology in reporting the results of smallpox vaccination Considerable difference is found in the terminology of the Navy and other organizations*

M D, California

Answer —It is difficult to say what terminology is preferred in reporting the results of smallpox vaccination When complying with the World Health Organization vaccination certificate for travel, a physician has only to report whether the vaccination is primary or secondary (revaccination) Only a primary vaccination must include the additional information as to whether it was successful or unsuccessful If the physician knows that the person has been vaccinated in the past and that he is administering a revaccination, he is not required to record the result of this revaccination However, it must be noted that, when a revaccination site is not inspected, there is no actual evidence of immunity If the vaccine used for revaccination was not potent or if the site of vaccination was not properly prepared, a successful take might not result

A more accurate way of reporting the result of vaccination would be to use the terminology "primary vaccination," "accelerated reaction," or "immediate reaction" The term "immune" reaction should not be considered, as it has been used by some physicians when they see no evidence of a take The best clinical evidence seems to indicate that, even after a recent vaccination, revaccination, if properly administered with potent vaccine, will cause a demonstrable lesion at the vaccination site

A successful take after smallpox vaccination can only be determined by observation of the reaction that occurs at the site of vaccination If repeated attempts to vaccinate fail to produce any reaction, one still cannot say that the person is immune Again, actual evidence of immunity cannot be determined unless the site of vaccination is reexamined

X-RAY TO THE ABDOMEN DURING PREGNANCY

To the Editor —*There will no doubt be a veritable flood of letters concerning the answer to Dr Roy F Messinger's question about taking routine flat plates of the abdomen in all pregnant patients* (J A M A *163 1659 [April 27] 1957)*

Let physicians refer to the report of the National Academy of Sciences—National Research Council (Biological Effects of Atomic Radiation, Washington, D C, 1956), to the paper by Stewart and associates (Lancet 2 447, 1956), *or to the editorial on this subject by Drs Dameshek and Gunz* (J A M A *163 838-839 [March 9] 1957) for a more valid appraisal of present information relating to this problem They will find overwhelming evidence that routine x-raying of pregnant women is contraindicated, not only because of genetic damage due to irradiation of the gonads of both mother and fetus but also because of possible direct injury even from diagnostic x-ray doses*

If an x-ray is unquestionably necessary in order to manage the patient successfully, it is justified, if there is no positive indication for it, it should not be taken

M Ingram, M D
The University of Rochester
School of Medicine and Dentistry
Rochester 21, N Y

The above comment was referred to the consultant who answered the original query, and his reply follows —Ed

To the Editor —*The taking of a single x-ray plate, presumably where indicated, was the subject of the original query This consultant is unalterably opposed to x-ray treatment to the abdomen during pregnancy, except perhaps for malignancy under special conditions As pointed out in the original answer and as is well known, x-ray therapy during gestation has led to irreparable injury*

The editorial by Dameshek and Gunz, to which the correspondent refers and which is entitled 'Diagnostic and Therapeutic X-ray Exposure and Leukemia,' says 'It is certainly by no means proved that the various diagnostic and therapeutic x-ray procedures cited above [data from Hiroshima] are clearly related to leukemia in human beings Nor is it clear how such exposure might lead to leukemia"

This consultant fully agrees with those who insist that, if there is no positive indication for an x-ray picture, either in pregnancy or in the nongravid state, it should not be taken Hence, x-ray pictures of gravid women should not be taken routinely A physician should be able to elicit practically all the information he needs about pregnancy, such as breech presentation, multiple pregnancy, abnormal presentation, and also some monsters, without the aid of roentgenography

There is a marked difference of opinion concerning the harmful effects of radiation Practically all geneticists agree that x-ray is doing a great deal of harm even when used for diagnostic purposes, but roentgenologists are of a different opinion Snow (Roentgenology in Obstetrics and Gynecology, ed 2, Springfield, Ill , Charles C Thomas, publisher, 1952) says 'Roentgenography for diagnostic purposes in obstetrics entails no risk For each film exposure the maximal energy delivered into the vagina, as measured with an ionization chamber, is 2 r When five film studies are made, which is the most complete type of study, about 7 r are delivered This is well within the safety limit' In spite of this optimism there is increased fear that x-ray pictures and certainly nearly all radiation therapy can have dire results The Medical Research Council of Great Britain has issued a report entitled Hazards to Man of Nuclear and Allied Radiations' (London, Her Majesty's Stationery Office, 1956) It was found that after heavy doses of radiation a pregnant woman may miscarry or may give birth to a stillborn child Information from the Atomic Bomb Casualty Commission shows that in Hiroshima and Nagasaki there were higher abortion and stillbirth rates among pregnant women near the explosion than among those at greater distances There is considerable evidence, both from the case records of patients treated with radiation and from reports published by the Atomic Bomb Casualty Commission, that heavy irradiation of pregnant women can lead to the birth of children who are either abnormal at birth or later develop abnormally The case records of women therapeutically irradiated during pregnancy list a number of different developmental abnormalities in the children, the most striking of which is microcephaly

Under modern conditions of occupational exposure, e g, among radiologists and radiographers, there is no evidence of any impairment of fertility Furthermore, there is no suggestion that female radiographers suffer from irradiation-induced menstrual disturbances which might be accompanied by diminished fertility The Medical Research Council has made several recommendations One is that personal records, not only of doses of radiation received during occupation but also of exposures from all other sources, such as in medical diagnostic radiology, should be kept for all persons whose occupation exposes them to additional sources of radiation The use of radiotherapy in nonmalignant conditions should be critically examined The small amounts of radiation from miscellaneous sources, such as x-ray machines used for shoe fitting, luminous watches and clocks, and television apparatus, should be reduced as far as possible

*Simultaneously with the release of this report from Great Britain appeared the report of the National Academy of Sciences in the United States (*Science 123 *1157, 1956) The recommendations made by both the British and the American committees are similar Both studies are particularly concerned with the possible genetic damage during the reproductive period of the first 30 years of life, and both calculate the accumulated radiation of the gonads during this time Both committees have agreed essentially on how much of an increase in radiation it would take to bring about a doubling of the mutation rate in man However, the American committee believes that all radiation is damaging, while the British believes that the present hazards from fall-out are 'negligible"*

DECREASED INSULIN REQUIREMENT

To THE EDITOR —*In the May 11, 1957, issue of* THE JOURNAL, *page 222, in the Queries and Minor Notes, an inquiry was made regarding the cause for a decrease in insulin requirement in a 73-year-old diabetic man who had been receiving 20 to 30 units of insulin After a stroke resulting in a hemiplegia, it was found that he no longer needed insulin, as evidenced by absence of sugar in the urine and a normal blood sugar concentration*

This apparent spontaneous remission of diabetes mellitus was explained by two consultants primarily on the basis that the patient's condition was now under better and more proper control and that this was the primary reason for the amelioration of his diabetes Certainly, improved control under hospital and highly supervised conditions will result in better diabetic control However, in such situations, involving the central nervous system in particular, one must also consider the possibility that this patient has suffered an injury to his hypothalmus or anterior pituitary gland I recently had the opportunity to observe just such an individual who, after a hemiplegia, also had a marked remission in his clinical signs and symptoms of diabetes This case was reported as an example of a spontaneous remission of diabetes mellitus or the Houssay phenomena in man in the Annals of Internal Medicine *(40 1230, 1954) There have been numerous other reports of similar cases The importance of recognizing anterior pituitary insufficiency as the primary cause for this apparent remission in diabetes is essential, as the* *treatment of such a patient would require full hormonal replacement therapy for the well-being of the patient, and corticosteroids in particular might well be lifesaving*

Marvin E Levin, M D
Washington University School of Medicine
St Louis

The above comment was referred to one of the consultants who answered the original query, and his reply follows —Ed

To the Editor —*There is no doubt that cerebral hemorrhage resulting in the destruction of the anterior pituitary would have a profound effect in diminishing insulin requirement, and the correspondent properly points out that such a contingency is worth considering in the kind of case under discussion Such a combination of lesions, however, is rare, and the probability is that a reduced intake of food accounts for the observed changes in the present instance*

PATHOLOGY OF MYOCARDIAL INFARCT

To the Editor —*In* The Journal, *March 16, 1957, page 1002, the answer to the query regarding pathology of myocardial infarct closes with the statement, It has actually been established by historical studies that coronary disease often occurs at progressively earlier ages in succeeding generations of persons with the disease" Dr Joslin, of Boston, has commented on observing similar relativities with reference to the reproductive transmission and reappearance of diabetes*

Please supply references in which this phenomenon of coronary disease is reported and, if readily available, any other references concerning similar reappearances of transmissible hereditary pathology at progressively earlier decades in human progeny This information is important for establishing the illustrative tendencies of various protoplasmic specificities of human family strains in heredity There already are biological laws explaining the cause of these and other biodynamic phenomena of human heredity We are seeking additional illustrative examples of comparable trends for the various endogenous constitutional diseases

Raymond L Schulz, M D
1815 Crenshaw Blvd
Los Angeles

The above comment was referred to the consultant who answered the original query, and his reply follows —Ed

To the Editor —*It has been this consultant's experience on many occasions to encounter families in which three or four siblings, usually male, would have histories of coronary thrombosis Similarly, it has been observed that patients with coronary thrombosis have had parents in whom there was a high incidence of coronary thrombosis There have also been observed a number of instances in which coronary disease has occurred in patients at a younger age than it did in their fathers who died of coronary thrombosis, although no documented significant evidence has been published in this regard*

Pertinent references from the literature of the last few years are as follows

1 Cassidy, M Coronary Disease Harveian Oration of 1946 (Lancet 2 587, *1946) The author claimed that family history played a notorious part in the etiology of coronary disease among one half of 100 patients studied*

2 Gertler, M M , and White, P D Coronary Heart Disease in Young Adults (Cambridge, Mass , Harvard University Press, 1954) Among significant comments are these Coronary heart disease runs in families (page 22), it is reasonable to suspect the existence of hereditary genetic factors in the etiology of coronary heart disease, extremely suggestive regarding inheritance (page 23), incidence of coronary disease is significantly greater in the parents of patients (15 0%) than in the parents of controls (5 8%) (page 29), coronary disease is familial (page 31), and difference in age at time of death is not statistically significant (page 68)

3 White, P D Clues in the Diagnosis and Treatment of Heart Disease (American Lecture Series no 295, Springfield, Ill , Charles C Thomas, Publisher, 1956)

Coronary arteriosclerosis of high degree, causing angina pectoris, coronary thrombosis, myocardial infarction, or sudden death, is notably commoner among the children of parents for whom there is such a history and especially if both parents were so affected in youth or early childhood Whether the condition is due to familial hypercholesteremia of greater or less degree, to an excessively mesomorphic build which is certainly readily inherited, to a genetic inadequacy of the coronary arterial tree, to hormonal imbalances, to familial gluttony, or to combinations of these or other factors not yet under fire has yet to be determined

ACHONDROPLASIA

To the Editor —*The answer to a query concerning achondroplasia in* The Journal, *April 27, 1957, page 1660, contains the statement, This condition is congenital, but it is not in the group of hereditary bone dystrophies The reverse is true Studies on achondroplasia cited by Neel and Schull (Human Heredity, Chicago, University of Chicago Press, 1954) indicate that the trait appears to be due to a dominant autosomal gene of high penetrance and that most of the cases of achondroplasia occurring in a population during a given period are isolated instances in the family concerned and hence are the direct result of mutation Thus, the conclusion that 'there is no tendency for increased incidence of achondroplasia in subsequent offspring may be correct, but it is based on a false premise*

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« Washington News »

Committee Investigating Federal-State Relations • •
Congressional Study of Filter Cigarettes Ended • •
Social Security Again Proposed for Physicians • •
Dr Hess Replaces Dr Rusk in Two Chairmanships • •

NEW INQUIRY INTO FEDERAL-STATE RELATIONS

A House subcommittee is embarked on an investigation of federal-state relations, particularly in the area of grants-in-aid, that will culminate in a series of country wide regional hearings this fall An important subject will be medical grants, such as Hill-Burton

The group, under the chairmanship of Rep L H Fountain (D, N C) is the intergovernmental relations subcommittee of the Committee on Government Operations Its work is closely tied in with that of the presidential commission headed by Meyer Kestnbaum, now a White House assistant, that made a two-year study of these problems and published its report in 1955

At the start of the hearings, Chairman Fountain explained 'The subcommittee s activities have been planned with two objectives in mind, first, to carry out its general responsibilities for studying federal-state-local relationships with particular emphasis on grants-in-aid programs, and second, to evaluate the recommendations of the Kestnbaum Commission and to ascertain what action is being and should be taken concerning them'

A key question is whether the federal government should attempt to withdraw from certain areas of taxation and at the same time drop federal programs, to allow states to assume the programs, financing their costs with relinquished federal tax sources

This point was an important center of interest as hearings got under way Mr Kestnbaum emphasized that it would not be easy to hold down federal activity or to induce states to do more One problem, he said, is the fact that many state constitutions have limitations on what programs the state can start and on its tax-raising activities

Mr Kestnbaum singled out Hill-Burton grants for building hospitals as one federal grants-in-aid program which might be discontinued In this connection, he said Congress itself might help by setting a termination date on programs or indicating at the time legislation is enacted under what circumstances they would no longer be needed

Speaking for the U S Chamber of Commerce, President Philip M Talbott suggested that it might be advisable for the federal government to turn over certain funds to states, then let the states decide what they would do about picking up programs that the federal government had dropped Other witnesses questioned whether under these circumstances the states would, in fact, assume the responsibilities the federal government had carried in the past, unless states assume the responsibility in order to get the tax money

Other witnesses included Mayor Frank P Zeidler of Milwaukee, representing the U S Conference of Mayors, Orin F Nolting, International City Managers Association, Patrick Healy Jr, American Municipal Association and Bernard Hillenbrand, National Association of County Officials

All witnesses were in agreement that states are too slow to take the initiative and solve their own problems, partly accounted for by the fact that rural members dominate many legislatures

CONGRESSIONAL INVESTIGATION OF FILTER CIGARETTES

After six days of hearings, a House government operations subcommittee has concluded its public investigation of filter cigarettes, with indications that two short-range and one long-range development will result

The subcommittee is expected to recommend that the Federal Trade Commission be given more money and more personnel so it will be better able to act against false or misleading cigarette advertising claims and that the statute be changed so tobacco will be considered a drug within the meaning of the food and drug law

This latter change would allow the FTC to obtain fast injunctions against cigarette manufacturers, requiring them to cease the protested claims pending termination of court action Under present law the companies may continue using the claims until the full legal course has been run, in some cases including appeals to the Supreme Court One action against a cigarette company has been in litigation now for four years and the end is not in sight

A long-range dividend of the investigation, in the opinion of subcommittee chairman John Blatnik (D, Minn), will be greater public interest in the various claims made for filter cigarettes, many of which he is convinced are exaggerated and misleading, if not fraudulent

The last witness before the subcommittee was Robert T Secrest, acting chairman of the Federal Trade Commission, who explained some of the problems FTC has to overcome to police cigarette advertising effectively

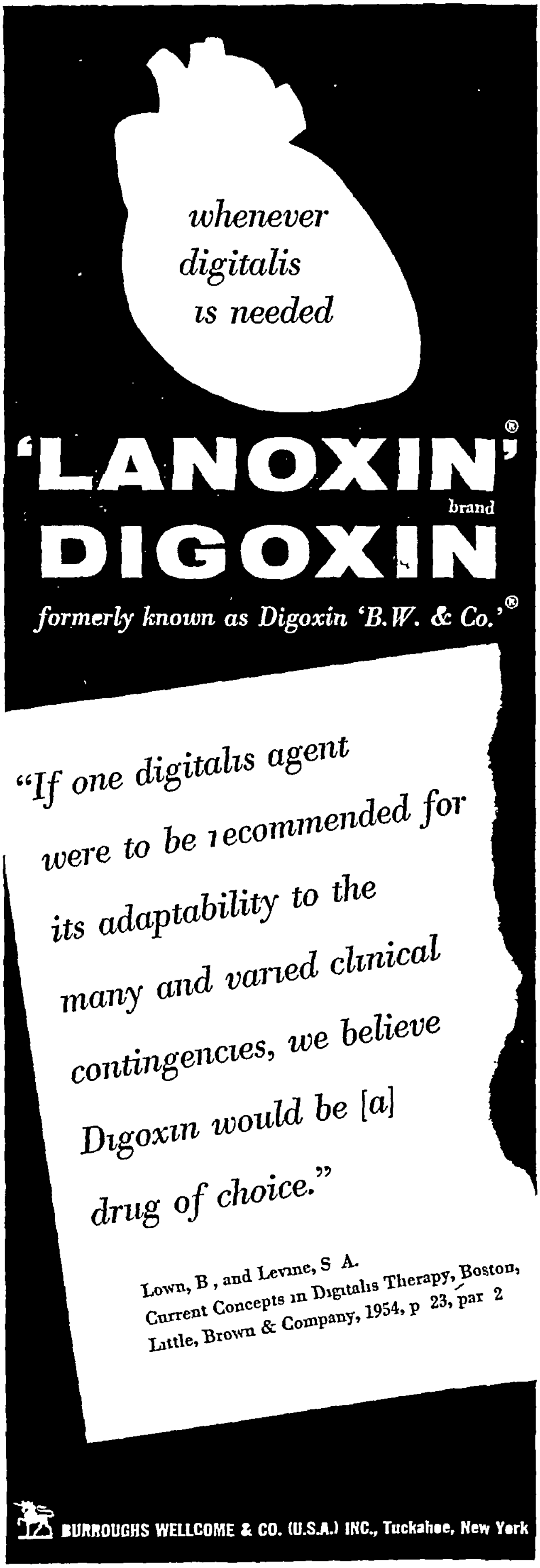
Earlier, testimony, much of it controversial, had been put in the records by physicians, researchers, and technical experts, on the amount of nicotine and tar in cigarettes and on the possible relationship between excessive cigarette smoking and cancer, particularly lung cancer

Statistical studies on cigarettes made in recent years were presented to the subcommittee, including one by the American Medical Association, on the relative effectiveness of filter cigarettes and filter holders in keeping objectionable substances out of the smoke stream In general the various data indicated that

1 There is a statistical correlation between heavy cigarette smoking and cancer, particularly lung cancer, and heavy cigarette smokers can expect shorter lives This implication of a connection was challenged by some witnesses, including two medical school representatives, who said many substances were suspected of inducing cancer but that there was not enough clinical evidence to place the blame clearly on nicotine or cigarette tars

(Continued on next page)

From the Washington Office of the American Medical Association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Lown, B, and Levine, S A. Current Concepts in Digitalis Therapy, Boston, Little, Brown & Company, 1954, p 23, par 2

BURROUGHS WELLCOME & CO. (U.S.A.) INC., Tuckahoe, New York

2 Filters can keep from 9 to 60% of the nicotine out of the smoke, and from 5 to 55% of the tars This was one of the points made by the A M A's witness Walter Wolman (Ph D), Director of the Association's Chemical Laboratory

3 The testing pattern over the last few years shows that, while the filters have demonstrated a degree of effectiveness, more and more nicotine and tar are appearing in the cigarette tobacco so the smoker is no better off now with most of the filter cigarettes than he was a few years ago with regular, unfiltered cigarettes

4 Tobacco consumption statistics, from the Department of Agriculture, show that cigarette manufacturers are making a definite shift from the light tobacco of prefilter days to the darker, heavier types that contain more nicotine and tars The reason, the subcommittee was told, was to improve the 'taste of filter cigarettes in the highly competitive market

Chairman Blatnik, noting that the cigarette industry declined to testify at the hearing, commented

We have been informed that in spite of the mounting medical evidence that tobacco tars and nicotine are deleterious to public health, the cigarette industry is marketing a product with as much or more nicotine and tar than ever

"We would like to know if the cigarette industry is conducting any research toward producing such a cigarette (a safe cigarette) or whether they are just sitting out this controversy in the hope that it will blow over'

SOCIAL SECURITY FOR PHYSICIANS RAISED AGAIN

A Republican member of the House from New Jersey has introduced an omnibus social security bill that would bring physicians under the old age and survivors insurance system Rep Robert Kean says he is "very much in favor' of compulsory coverage His bill has eight major points which he believes can be enacted without increasing the social security tax rate

Mr Kean said the changes were possible because of the present full employment at higher wages and the increased earnings of the social security fund owing to higher interest rates Some indication of the debate certain to arise on this subject in the next session of Congress came the day following introduction of the bill

Senator Martin (R, Pa) warned the Senate that benefits being paid out of the social security fund are mounting more rapidly than expected when amendments were voted last year As a result, for the first time in the history of the system, more money will be paid out this year than will be collected in payroll taxes The system is kept in the black, he said, by interest on government bonds in which th security fund is invested

Representative Kean in a press stateme to say on the proposed inclusion of physici social security 'I have received thousands sions from doctors asking for and endorsing step It seems unfair that doctors families are n covered and entitled to benefits as are the survivi other self-employed"

His bill contains these additional points (1) crease maximum wage base from $4200 to $48 which under the present tax rate would increase soci security taxes $13 50 a year for those earning $4800 or more, (2) payment of benefits to dependents of those receiving disability payments, (3) authorization of payments from trust fund toward rehabilitation of persons now receiving disability benefits, (4) increase ultimate benefits for those who work after age 65 by a 1% a year delayed retirement benefit, (5) increase maximum family benefits for widows and dependent children from $200 to $296 25 a month, (6) increase widow's benefits from 75 to 80% of the worker's primary insurance amount, and (7) cover tips received as wages

Mr Kean adds this comment 'In general these improvements I suggest are moderate One all important thing which we must remember is that the soundness of the trust fund must be maintained We must always remember that any substantial increase in social security benefits must be met by a like substantial increase in contributions The scheduled social security tax will reach a figure in 1975 that is about all industry and the working man or woman should bear "

DR HESS NEW CHAIRMAN OF SELECTIVE SERVICE AND ODM COMMITTEES

Dr Elmer Hess, former president of the American Medical Association, has been appointed chairman of the National Advisory Committee to Selective Service and the Health Resources Advisory Committee to the Office of Defense Mobilization He succeeds Dr Howard Rusk of New York City who has held the dual posts since their creation in 1950 at the time of the Korean war

Dr Hess' first committee appointment was made by President Eisenhower This committee advises selective service on the induction of medical and dental officers into the armed services The second appointment was made by Gordon Gray, head of the ODM This group advises the government on broader medical manpower problems, particularly in time of national emergency or war

Dr Hess, who is from Erie, Pa , served in the Army Medical Corps in World War I in France and received a number of decorations He has made several missions for the government, one to Korea for the Army, and is now on a tour of medical installations for the Air Force He has been a member of the A M A Liaison Committee to the Secretary of Health, Education, and Welfare

MORE TIME TO FILE UNDER "DISABILITY FREEZE"

The Social Security Administration is reminding persons who have been disabled for some time that they have nearly a full year in which to apply for full social security benefits under the disability freeze provision A new amendment passed by Congress and recently signed into law by the President extends until June 30, 1958, the time for persons severely disabled before Jan 1, 1955, to file an application

Social security benefits are based on the average dent [illegible] of the worker Under the disability freeze visable fo passed two years ago, years of no earnings funds to [illegible] disability may be dropped in computing would d earnings This thus retains full benefits for disgovernm orkers Until the recent action, persons filing whethe ne 30, 1957, could not have their wage records in fact," retroactively

ment cials of the Social Security Administration said res believe many disabled persons still have not ap- [illegible] for their rights under the freeze provision The M st amendment also provides that veterans with rvice-connected disabilities may receive full disbility benefits under social security along with their disability compensation from the Veterans Administration

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1 Coan J P McAlpine J C and Boone J A J South Carolina M A. 51 417 (Dec) 1955

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THREE-YEAR PILOT REHABILITATION STUDY IN A GENERAL HOSPITAL

James M Whittico, M D, Montague S Lawrence, M D, Dorothy Stauffer, M S W
and
Robert Elman,† M D, St Louis

• *An evaluation was made of two years of rehabilitative work with 86 patients selected from indigents in a city supported general hospital Most of these patients were receiving merely custodial care, and their therapy had reached a stationary level, the basic criterion for selection was the absence of likelihood that the patient could return to full employment unless something was done The program here described was carried out by a special team of professionally trained social service workers under the supervision of a physician A survey at the end of a three year period showed that 25 had returned to full employment, 17, though still under treatment, showed promise of complete rehabilitation, an additional 19 were able to leave the hospital for home care or self care 8 refused the service and 8 were considered unpromising The financial saving to the community was easily calculated, and far outweighed the cost of the program, which was carried out without changing the organization of the services and utilized mostly voluntary time by workers assigned to other duties at practically no cost The additional intangible effects, however, proved to be at least equally important*

Based upon principles previously described,[1] a pilot rehabilitation study was started on July 1, 1953, at the Homer G Phillips Hospital, a city-supported general hospital for the care of indigents The present report deals with a brief follow-up of 86 patients studied and treated during the first two years, although the project is still active and in continuous operation at the time of writing No attempt will be made to review the literature in this vast field A preliminary note on the present study was published previously[2]

Methods Used

A team was set up consisting of a young member of the visiting staff (called hereafter the medical consultant) and professionally trained social service workers Cases were selected in various ways, often by referral from visiting staff physicians, or by the medical consultant himself from his personal survey of the hospital census Mostly, patients were recruited from those who had been in the hospital for some time and whose therapy had reached a stationary level Many were receiving merely custodial care, and several had been living at the hospital for many years No attempt was made to select 'easy' cases, but, in fact, the more difficult problems were chosen The basic criterion for selection was the absence of likelihood that the patient could return to full employment unless something were done From this group, only those were finally chosen who showed sufficient motivation or desire for restoration to full employment, at least in the opinion of the caseworker after consultation with the medical [illegible]nt It should be mentioned that the social [illegible] and physician sometimes disagreed in this [illegible]out more often the former proved to be cor- [illegible]he end The most serious initial problem was [illegible]aining of space in which to discuss cases and [illegible]le and file records After much effort, a room [illegible]his purpose was found off one of the crowded [illegible]ds in the hospital

The list of diagnoses in the various cases is too long to record in this brief report To illustrate their range, the following examples were selected at random amputations, severed ulnar and other nerves, hypertensive heart disease, cardiovascular disease of other types, chronic pancreatitis, congenital exstrophy of the bladder, paraplegia and hemiplegia, various fractures, carcinoma of the colon, cerebral brain damage from concussion, carcinoma of the breast, severe burn of the face, gastrectomy for duodenal ulcer with postoperative complications, carcinoma of the cervix after pelvic exenteration, and diabetes

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From the Homer G Phillips Hospital and the Washington University School of Medicine

†Dr Elman died Dec 23 1956

The social worker first saw and evaluated the patient on the basis of the medical record, personal history, social background, and probable ability to assume an active occupation The case was then discussed with the medical consultant, and, if accepted, a program was arranged aimed at restoring full employment The variety of services used included medical therapy in and out of the hospital, surgical procedures, psychological aid (usually by the social worker and augmented by psychiatric assistance when indicated), physiotherapy within the hospital department, nutritional advice, and, finally, vocational training and job placement when necessary In outlining the plan in each individual case, all of the existing facilities of the hospital were employed, including consultations with various specialists The latter, of course, required full cooperation of the house and visiting staffs, which was not always as easily obtained as it should have been, at least in the beginning, but cooperation was fully forthcoming after each physician understood the nature of the project

The medical consultant at first tended to take over the care of the patients, all of whom were segregated in the end of each ward This plan was readily accepted by the attending surgeons in the case of the paraplegics and other seriously disabled patients, most of whom were looked upon with great indifference There was no problem in transferring them to the care of what was called the rehabilitation service ' It was soon apparent, however, that we were really unprepared for this type of care, which, moreover, tended to completely disrupt normal organization of the various departments The idea was, therefore, quickly abandoned for these and many other reasons In the plan adopted, and now in successful operation, the medical consultant acts only in an advisory capacity and as a liaison agent in directing the efforts of the social worker He also plays a decisive part in promoting the education and cooperation of the house and visiting staffs

Results of Rehabilitation Services Supplied, 1953-1955*

Present Status	No	%
All patients	86	100.0
Still being rehabilitated	17	19.8
Rehabilitation completed returned to full employment	25	29.0
Self care at home need sheltered employment	14	16.2
Self care at home avoided permanent institutional care	5	5.8
Failure on relief no employment in industry for unskilled laborer to support family of 11	1	1.3
Rehabilitation not feasible	8	9.3
Patient refused services	8	9.3
Referred to other agencie	3	3.4
Left St Louis	1	1.3
Died	4	4.6

* As of July 1956

In addition to utilizing the services within the hospital, attempts were made to utilize existing facilities outside the hospital Vocational evaluation offered no problem Occupational therapy was also readily available, thanks to an excellent unit in this city The help of the Red Cross in transporting patients was useful Vocational training was handicapped because nearly all of the patients at the Homer G Phillips Hospital are Negroes, and many of the training centers are segregated and, therefore, could not accept Negro students Job placement was similarly curtailed Fortunately, most of the patients were able to resume their former occupations However, in the case of the severely handicapped, the problem is still unsolved, due also to the absence of any organized agency in the city of St Louis for the employment of this group of workers, particularly when they are Negroes Patients able to do sheltered work activity, therefore, remained unemployed because such facilities in the community are inadequate Despite these problems, a substantial number of the individuals selected for rehabilitation were successfully brought to full economic employement

Findings

During the firt two years of the project, 86 patients were accepted for rehabilitation, and the present report deals with their status at the end of a three year period (see table) It will be noted that 29% of the total have been returned to full economic activity An additional 20% are still in process of being treated Thus the two groups together, whose complete rehabilitation has been achieved or may be expected, constitute 49% of the total number of individuals An additional 16% were discharged from the hospital to be taken care of at home, capable of sheltered work activity when, as, and if adequate provisions in this community become available for this type of worker An additional 6% of the patients returned to their home for self-care, thus avoiding permanent hospitalization The other categories are self-explanatory

The saving to the taxpayers resulting from this project with 86 patients was considerable but difficult to measure in an exact total figure A study of 40 cases showed, that, at the start of this project, they had already cost the community $483,000 in hospitalization and welfare Much of this could have been saved Most of those rehabilitated are now earning from $100 to $300 per month, thus not only saving the cost of their previous care but actually contributing to the tax returns of the community In sereval cases, welfare relief to the extent of $600 a year for several years was changed to earnings of $2,000 per year, which will continue indefinitely

Many intangible findings emerged from this study Most important was the successful establishment of a pattern of teamwork between the various services in the hospital, based primarily upon the close relation, at the bedside of clinical level, between the patient and the social worker The latter became an integral part of the diagnostic and therapeutic team and acted as the liaison agent (with the medical consultant) by seeing that the various services were continuous and correlated with each other To achieve this purpose, weekly consultations between the medical consultant and the social worker were found to be essential Members of the house and visiting staffs concerned with the care of an individual patient frequently attended these meetings, contributing to their value and in turn gaining much information in regard to the further therapeutic requirements

A gradually increasing interest on the part of the younger physicians and surgeons on the house staff, as well as the older practitioners serving on the visiting staff, was soon apparent At first skeptical of or indifferent to the program, they became more and more impressed with the results which were obtained As a result, the advice of the social worker and the medical consultant was sought increasingly At the present time, most of the staff are convinced that the activities of the social worker and an over-all plan for the ultimate restoration to full earning capacity represent a great opportunity and indeed a responsibility in which, of course, they play a decisive part

Not the least of the findings which emerged from this study was the changed attitude of the patient himself Previously he knew only the pattern of seeing a number of different doctors both in the hospital and in the outpatient clinic, none of whom seemed really interested in him as an individual Once, he realized he had a continuous contact with a single person, the social worker, who saw him from the start and continued seeing him through all the various types of services received, his pattern of response improved, sometimes dramatically This was often expressed by the patient in unmistakable language He felt, usually for the first time, that someone really cared for his welfare in a specific way This fact alone, in case after case, resulted in a most heartening increase in the motivation of the patient as shown by his obvious effort and desire to do all he could to help achieve the announced objective Thus, it was noted, as many students of human behavior have found in the past, that even the seriously disabled person under the most unfavorable circumstances will often exert himself to an unexpected degree, provided he is given an expert and sincere helping hand

Comment

Although there were concrete results from this small project, it was apparent quite early that much time had been lost when work on a case was started late Many of these patients could have been rehabilitated years earlier and with less effort had this service been available at the time of their first admission or at least soon after their injury or operation For example, after a successful mastectomy for carcinoma, one patient went on relief and remained on for four years because she thought she was doomed, though actually she suffered largely from deep cancerphobia It would have been easy to prevent this disability had proper therapy been started immediately after the operation Four years later considerable time and effort were required, in terms mostly of psychotherapy and some physiotherapy, to restore her to her former job as an excellent and well-paid laundress

To investigate this aspect of rehabilitation in our hospital, a new project was started during the year 1955-1956, the details of which will be described later by one of us (D S) Briefly, information was obtained on every 10th admission on the general medical and surgical services, and the cases were later evaluated as to the probable need for rehabilitation services according to the present plan A minimum of 12% of the total sample, or in this hospital 2,200 patients per year, was found to fall into this category on these two services alone The word minimum is used because many were probably missed among the 30% of the selected admissions who left the hospital before an interview could be arranged More important than this were the results in 68 patients of this group selected for rehabilitation Within one year, half, or 33 cases, were closed, in which 18 patients, or 50%, were restored to full activity This preliminary study has already shown what we learned first hand, and most workers in the field already know, that the earlier the work is started the quicker and the more efficient the results

Summary and Conclusions

A rehabilitation team consisting of a medical consultant and professionally trained social workers, using existing facilities in a general hospital, was able to return to active employment a probable total of 50% of 86 patients selected because they were on or seemed headed for federal-state relief under the category of total and permanent disability This result was achieved without change in the organization of the services, using mostly time voluntarily contributed, at practically no cost, by workers assigned to other duties As a result of experience in this project, we would stress the importance of medical supervision, the benefits of close teamwork between trained social workers and physicians, the value of the education of house and visiting staffs in the methods of and need for rehabilitation and the greater efficiency of rehabilitation when started early in the patient's illness

916a N Taylor St (8) (Dr Whittico)

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Bacteria in the Normal Ear—The resident bacterial flora in the healthy human ear canal is remarkably constant There is no difference in the flora in various geographic locations, between the sexes or from season to season The resident flora is composed primarily of Micrococci and Corynebacteria The transient flora varies slightly with personal hygiene Cerumen, as it exists in the ear canal in health, does not, by the method [we] used, exhibit any inhibition of the growth of the organisms tested Pseudomonas aeruginosa, acting alone, is not likely to be the cause of external otitis in previously healthy ear canals If it is an etiologic factor, secondary etiologic agents such as trauma or increased environmental heat or humidity, must be required to act simultaneously—E T Perry, M D , and A C Nichols, M S , Studies on the Growth of Bacteria in the Human Ear Canal, *Journal of Investigative Dermatology*, September, 1956

PROGNOSIS IN POST-TRAUMATIC EPILEPSY

A TEN-YEAR FOLLOW-UP OF CRANIOCEREBRAL INJURIES OF WORLD WAR II

A Earl Walker, M D, Baltimore

• *Brain damage following craniocerebral injuries is much more devastating in its effect on the personality and the total individual than a chronic disability limited to some other part of the body In evaluating the capacities of an individual after the occurrence of a head injury the total picture must be examined, for the disturbance is more than the sum of hemiplegia and epilepsy Even if post traumatic seizures do develop, it should be clearly understood that they do not forecast recurrent convulsive attacks The contention that a few dizzy spells or momentary blackouts after a head injury, along with abnormal electroencephalographic findings, are sufficient to establish the diagnosis a chronic epilepsy is false, since neither these clinical manifestations nor abnormal brain waves are adequate for the diagnosis of a convulsive disorder per se*

Although it has been known for centuries that head wounds might cause convulsive attacks, it is only in modern times that post-traumatic epilepsy has been studied in detail, due to the fact that almost all penetrating brain wounds that carry high epileptic potentialities were lethal until the introduction of antiseptic techniques in the latter half of the 19th century Prior to that time, if the initial shock and blood loss did not kill, the ensuing infection almost always did Hence, patients with serious brain injuries did not survive long enough to develop epilepsy Only after Lister's time did survival of craniocerebrally wounded patients come to be the rule rather than the exception, so statistics on post-traumatic epilepsy are available from the Civil, the Franco Prussian, and Russo-Japanese wars and, particularly, from World Wars I and II

In most previous surveys of head injuries the primary interest has been in determining the incidence of epilepsy rather than in following the course of the patient after post-traumatic epilepsy has developed, which is the purpose of this study Baumm [1] did note that 15% of patients from World War I with post-traumatic epilepsy spontaneously ceased having attacks and that 30% had very minimal ones In 1928, Alajouanine and co-workers [2] reported on the basis of a follow-up of French wounded in World War I that post-traumatic epilepsy was much better or cured in 16 6% of the cases

Method

The patients in this series were 246 head-injured soldiers admitted to Cushing General (Army) Hospital, Framingham, Mass, from 1945 to 1946, at which time the hospital was the Army post-traumatic epilepsy center These men were known to have had head injuries, all but 10 having had open wounds Every man was considered at the time of admission to have had at least one convulsive seizure, and all except four had more than one, but, in the course of subsequent studies, two patients were excluded from the series on the grounds that their attacks were probably not epileptic The biological characteristics of the population have been presented in previous reports [3] and will not be repeated here except to say that the series was composed of males of military age who had suffered somewhat more severe head wounds than those encountered in an unselected group admitted to an Army general hospital in wartime

The men in this series have been contacted annually since 1946, and in 1950 to 1951 a five-year survey was conducted by questionnaire and personal interview At that time 58 men were examined in person, and their replies to a previous questionnaire were compared to the interview data Insofar as the frequency and severity of the epileptic attacks were concerned, the questionnaire material was found generally to be accurate, in the few instances in which discrepancies were apparent, the discrepancies were in the direction of exaggerating the seizures rather than in underestimating them It is recognized, however, that no patient can give accurate data regarding the number of seizures he had three or four years previously On the other hand, if a patient states that he has had no seizures of a particular type for five or more years, there is no valid reason to doubt his statement, especially since the occurrence of seizures might increase his pension Accordingly, the results in this follow-up study on epilepsy will be given in terms of no attacks for the last two or five years, rare (not more than two per year for four years), and continuing attacks, which indicates more than two attacks annually

In the collection of this data, an epileptic profile was devised and was found to be a useful device for recording the number of each kind of attacks per unit of time (a year) and the type and amount of medication These data could be put on a punch card A code was used to indicate the number of attacks per year (major and minor attacks were tabulated separately) and the anticonvulsive drug therapy (the drugs taken for more than half the period) per unit of time (table 1) Thus a profile for a period of eight years, such as

Major	3, 2, 5, 6, 1, 0, 0, 0
Minor	8, 8, 8, 8, 0, 0, 0, 0
Medicament	3, 4, 5, 6, 7, 7, 7, 7,

would indicate 3 major attacks and 20 or more minor attacks in the first year after injury, at which time the patient was taking less than 0 2 Gm of phenobarbital

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From the Division of Neurological Surgery, the Johns Hopkins University Medical School

Read before the American Neurological Association, Atlantic City, N J, June 18, 1956, and the Western Institute of Epilepsy, Vancouver, B C, Sept 8, 1956 daily, and, during the fifth year after injury 1 major attack, no minor spells, when he was taking 0 2 Gm or less of phenobarbital and 0 3 Gm or less of diphenylhydantoin sodium

The 10 year follow-up of the Cushing hospital cases was made by questionnaire, examination, or telephone call or, in some 24 patients who could not be contacted otherwise, by reference to the Veterans Administration's files

Of the original series of 244 patients (2 were eliminated because of doubtful diagnosis of epilepsy), 19 are known to be dead Follow-up in three patients was not for more than two years, in three for only five years, in one for six years, in one for seven years, and in five for eight years The remaining 212 patients have been followed for 10 years from the time of their injury, which is about 9 years from their first attack There is some reason to believe that the six who have not been located in the last five years probably are having little if any difficulty relative to their head injury, for, if they were, it seems likely that they would have applied for a pension

Mortality

In a population of young men between the ages of 18 and 36 years, the death rate over a 10-year period in normal times is 2 5% Of these 244 men, at least 19 died in the decade between injury and follow-up, and one was dying at the time of the last report It is true that 10 of these men died in the first few years, 6 of causes related to their wounds or to infective complications thereof One man died in a convulsion, and three died of unknown causes

There remain the nine men who died in the second half of the 10-year period As might be expected in any population, three of these nine patients developed fatal diseases not related primarily to the nervous system and probably unconnected with their head injuries A number, however, seemingly succumbed to conditions secondary to the war wound One man died during operation for a brain abscess The patient who was dying at the last report had recrudescence of infection in his head and meningitis Two men died in convulsive seizures Another two were killed in automobile accidents, which might possible have been averted had their physical conditions been better The one suicide was probably due to a depressive reaction secondary to the patient's crippled condition

Thus, one must conclude that, over a period of 10 years, the risk to life is increased at least two to three times by post-traumatic epilepsy How much of this increased risk is due to the cerebral wound, the neurological deficit, or the epilepsy is not easy to determine Unquestionably, at least, the deaths of the three men which occurred during seizures must be attributed to epilepsy and the deaths of another eight patients to the craniocerebral wound This increased risk has been noted in series from World War I Vogeler[4] reported 25 deaths in 500 patients after from 12 to 14 years

Social, Economic, and Occupational Status

According to their reports, approximately 90% of these men are satisfied with their homes and economic status This may simply be a reflection of the fact that they are receiving a pension adequate to enable them to enjoy life The small percentage who are dissatisfied with their lots and/or were having marital difficulties would seem to be about the same as that found in the general population

The occupational status of these men is much more interesting Of the entire group, 46 6% of the patients now living are gainfully employed The type of work runs the gamut of occupations, however, without any of the professions being represented Many men are doing clerical work, some are selling various goods, some are farming, some are supervisors in industry, and a number run their own small business ventures One man with hemiplegia installs television towers and antennas, and one is a jeweler A man with aphasia is the head of a banking department, but he uses a comptometer for adding columns of figures Quite a few of those not employed do odd jobs about the neighborhood or house

The work habits of these men do not correlate with their neurological status or with the frequency of their epileptic attacks It is true that more of the men with functionally normal nervous systems are employed than are those with gross neurological deficits, but many "normal men are not working Of the 123 men who had gross neurological deficits, 47 were employed and 76 unemployed, and, of the 89 men with functionally normal nervous systems, 52 were employed and 37 unemployed Moreover, of the 102 patients who are seizure-free, half are unemployed Of the 33 men with rare attacks, 16 were employed and 17 unemployed, and, of the 85 men with continuing attacks, 35 were employed and 50 unemployed Hence the neurological status in terms of paresis or epilepsy does not seem to be the determining factor in the employability of these head-injured men

TABLE 1—*Code Used in Analyzing Frequency of Attacks per Year and Medicament Being Taken*

Code	No of Attacks	Code	Daily Dose of Medicament Gm
0	None	0	None
1	1	1	Bromides 3 or less
2	2	2	Bromides > 3
3	3	3	Phenobarbital 0 2 or less
4	4	4	Phenobarbital > 0 2
5	5	5	Diphenylhydantoin sodium 0 3 or less
6	6	6	Diphenylhydantoin sodium > 0 3
7	7 19	7	Combined*
8	20 or more	8	Other (specify)
9	Multiple attacks no unspecified or unknown	9	Amount unknown
V	Unknown if or how many attacks	V	Unknown if drugs

* Phenobarbital 0 2 Gm or le and diphenylhydantoin sodium 0 3 Gm or less

If one searches for relevant factors, the best correlation would seem to be that of employment with intelligence In this series the IQ was determined after injury by the Wechsler-Bellevue intelligence scale However, the score on the Army general classification test of 36 men at the time of induction is known If one compares this with the verbal score on the Wechsler-Bellevue test, with which it seems comparable, the scores before and after injury differ less than 10 points in 21 patients. In only six men was there a drop in the post-traumatic score of more than 10 points, in four of these patients, the tests indicated mental deterioration or aphasic difficulties. In nine patients the post-traumatic score was more than 10 points higher than the AGCT score. This apparent improvement may well be explained by differences in motivation at the time of the two tests, that a real gain in intelligence of this magnitude could occur is contrary to current psychometric concepts. One may then conclude that the post-traumatic IQ as determined by the Wechsler-Bellevue test is a reliable index of the post-traumatic native mental endowment in 80% of the patients and in a higher percentage if evidence of deterioration is considered in the calculation of an adjusted post-traumatic score. On the basis of the post-traumatic IQ, there is a marked correlation between the work status and the intelligence of the individual. Only 11 of 76 men with IQ's below 90 are working, whereas 6 of the 38 men with IQ's above 110 are not working. Of the 99 men with IQ's of from 91 to 109, 53 were employed and 46 unemployed. In fact an IQ below 100 was generally associated with unemployment.

TABLE 2.—*Incidence of Attacks in 224 Men with Post-traumatic Epilepsy*

	No. of Men with		
	Any Type of Attack	Major Attacks	Minor Attacks
None in 5 yr	78	124	61
None in 2 yr	23	19	13
Rare attacks*	32	20	15
Continuing attacks†	86	38	77
None at any time		18	53

* Not more than 2 a year for 4 yr.
† More than 2 attacks a year.

Course of Epilepsy

Criteria for Diagnosis of Epilepsy.—After a head injury most patients have blackouts on getting up for some days or weeks. These phenomena may continue for weeks, usually becoming less frequent and disappearing entirely eventually but, occasionally, they recur indefinitely, perhaps lasting for minutes. They are rarely associated with generalized convulsive seizures. Then, there are patients who develop minor paroxysmal paresthesias of an extremity after a known wound of the brain or have a few twitches of an arm or leg. Should these phenomena be labeled post-traumatic epilepsy? In some cases these phenomena never progress to a generalized seizure, but, in other instances, they may be associated with a convulsion. When not followed by a seizure, these phenomena are difficult to classify. If such minor episodes are diagnosed as epilepsy early, the patient's life may be handicapped by the stigmas that are placed on this condition, and yet the attacks may never progress to a generalized seizure or be accompanied by a loss of consciousness. Is a single genuine convulsive attack sufficient to warrant making the diagnosis of epilepsy? If not, how many fits are necessary to fulfill the requirements—two, three, or how many? Again, there is no absolute answer.

For the purpose of this study, the following arbitrary criteria were set up. Major attacks were coded if the patient had one episode associated with loss of consciousness sufficient for the patient to fall or lose control of himself. Minor attacks were coded if the patients had paroxysmal attacks, including localized twitching, paresthesias, dizzy spells, and blacking out, that might or might not progress to a generalized seizure. In the event of progression to a generalized convulsion, the attack was classified as a major one.

Attacks.—The epileptic attacks may be considered in terms of any type of episode and in terms of major and minor attacks. Of the entire living group, 46.1% of the men have had no attacks of any type for more than two years and 35.6% have had no attacks of any type from the 5th to the 10th year after injury. Of the remaining patients, 14.6% have experienced only one or two attacks a year in the last 5 years of the 10 year period and the remaining patients continue to have frequent attacks (table 2). This freedom from attacks was not necessarily related to anticonvulsive medication, for more than half of the men who were free of attacks (39 of the 76 for whom this factor was known) had taken no medication for five years.

Major attacks. The frequency of major attacks was less than that of attacks of all types. Some 65.2% of the men had had no major attacks for more than two years, in fact 56.5% had had no attacks from the 5th to the 10th year after injury, and 9.1% had rare attacks, perhaps once a year. Only 17.3% had frequent major attacks.

Minor attacks. Minor attacks were somewhat more frequent, because all symptoms of an attack were included. No example of a true petit mal epilepsy was found in this group. The minor attacks consisted in localized twitching, paresthesias, and dizzy spells that at times continued to a generalized seizure. Ten years after injury, such episodes were continuing in 35.6% of the patients and 6.8% had such attacks about once a year. In the remainder of the patients no minor attacks had occured for several years, and in 27.8% none had occurred for five years.

Prognostic Factors

Early Cessation of Attacks.—From the prognostic standpoint, several factors are apparent. In the first five years, the cessation or absence of any type of attack for one year is a good omen, for such patients have about four chances out of five (35 of 43 patients) of having no more seizures in the next five to eight years. If the patient is free of attacks for two years, the chances of recurrence of multiple attacks is approximately 2 in 100. Even if a patient has occasional attacks in the first five years after a head injury, however, there is still one chance in four that there will be no recurrence of attacks in the subsequent five years.

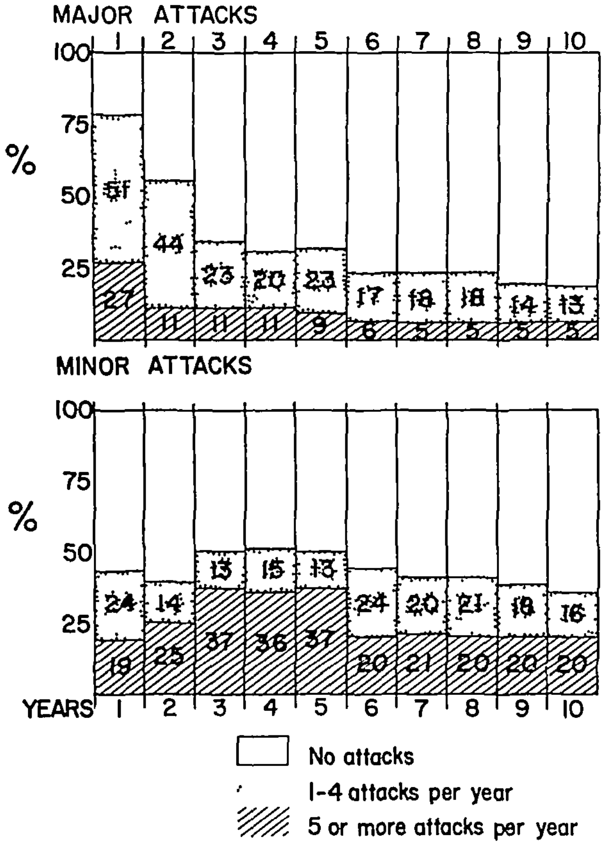
Early Occurrence of Attacks.—It is generally considered that patients having attacks within the first few weeks of a head injury usually have focal fits and that the prognosis is better than in those developing seizures later. In fact from World War I, Credner[3] stated in 1920 that, of 41 patients with early post-traumatic epilepsy, 16 had no further attacks after the wound healed. Baumm[1] found that 55% of the patients in whom attacks occurred before the end of the first week had no further attacks and that 41% of those who had attacks before the end of one month and 31% of those who had attacks in the first three months had no later attacks Penfield and Shaver [6] believe that the early fit is only a symptom and that less than 30% of the patients with this symptom will have recurring epilepsy Russell and Whitty [7] reported that 20 of 56 patients with convulsions occurring in the first month had no further seizures

This series is probably biased in relation to early cases of epilepsy, since it is composed of men who were having or had had convulsive seizures in an Army general hospital Those individuals who had early seizures in evacuation units or base hospitals and did not have attacks after transfer to the zone of the interior would not be likely to be sent to the center Hence, it is not surprising to find that in this series the patients in whom epilepsy developed early have fared no better than those in whom it developed late Of 16 men who had attacks in the first week after wounding, only 5 were free of seizures for the last five years of follow-up Moreover, the majority of these who had early seizures had major attacks (12 of the 16 patients) Of the 12 patients who had attacks (6 major convulsions) after the first week but in the first month, 5 men were subsequently seizure-free for five years Hence, of the entire group of 28 patients who developed convulsions in the first month, approximately 36% had no attacks later This is not a statistically valid difference from the figure for the entire group Of the 28 patients who had attacks during the first month after injury, 10 have had no attacks for five years and 1 has had no attacks for two years Rare attacks have occurred in 2 men, and 15 have had continuing attacks

Frequency of Attacks—Of prognostic value also is the frequency of attacks If the seizures do not occur in the first five years more than every two months on the average with or without medication, the chances are better than three to two that the attacks will stop On the other hand, if they occur more frequently, the chances are reversed As a corollary, patients who become seizure-free are likely to be the ones with infrequent seizures, but the frequent occurrence of attacks in the first few years is not necessarily an indication that the seizures may not be controlled The influence of frequency of attacks in the first five years on the prognosis is shown by the following statistics based on 100 patients Of those who had six or fewer attacks a year, attacks ceased in 34 and continued in 22 men, and, of those who had more than six attacks a year, they ceased in 15 and continued in 29

If one analyzes the data concerning the frequency of attacks over the 10-year period in terms of complete freedom from attacks, infrequent attacks (one to four per year), and frequent attacks in relation to both major and minor episodes, a better idea of the trend is obtained (see figure) It becomes evident that there is a definite falling off in the incidence of major attacks during the first three years, but the total incidence of minor attacks shows no such tendency In fact the number of patients in each category is practically the same throughout the 10-year period It is apparent, then, that, as some patients become free of minor attacks, as indeed they have, other patients formerly having major attacks have only minor ones, thus maintaining a constant incidence in the latter group Improvement, then, is manifested not only by the elimination of both major and minor seizures but also by the shift from major to minor episodes

Neurological Deficit—It is of interest to examine the patients *in relation to the residual neurological deficits* Of 192 patients, 111 had gross neurological deficits Of these, 55 had had no attacks for two years, 14 had rare attacks, and 42 had continuing attacks, as compared to the following figures for the 81 patients whose nervous systems were functionally normal 20 had had no attacks for two years, 16 had rare attacks, and 45 had continuing attacks Thus, approximately 50% of the patients with gross neurological deficits have had a cessation of attacks for two years or more, whereas only 25% of the group without neurological impairment have such a record The significance of this is not apparent Does the neurological deficit act as surgical extirpation to decrease attacks? Most of the men with such an impairment do have motor disorders There is no reason to believe that the patients in this group are taking more medication or being more sheltered than the others



Graphs indicating the incidence and frequency of major and minor attacks each year from the time of injury

Total Disability—There is one more factor that should be mentioned in the natural history of post-traumatic epilepsy, that is, the total or general disability of the individual In the final analysis none of the individual defects, such as hemiparesis and epilepsy, could be responsible for the failure of an individual to return to a normal existence Less than half of the patients in this series have regular occupations Yet many have had no convulsions for some years and have no overt neurological deficits. The great majority of these patients lie around the house because working 'makes their heads worse' or 'makes them too tired.' Attending movies, limited reading, listening to the radio, or watching television constitutes the only diversions of many of these patients. They are suffering from a much more complex disability than hemiplegia or epilepsy. Some of these men have attempted one or more rehabilitation programs and failed. These patients are victims of the chronic post-traumatic syndrome, which is probably due to insufficient drive, intellectual or physical, *for them to make an adequate adjustment in* relation to their disabilities.

Brain damage is much more devastating in its effect on the personality and the total individual than is a chronic disability that is limited to some other part of the body. Consider, for example, the individual who has lost a limb. With an intact brain and personality, he can adjust to his physical handicap. With all his mental faculties, he has many occupations to which he may turn. The individual with monoplegia, however, not only has lost the use of the limb but has a damaged brain to which his impaired mental faculties must make an adjustment before he can compensate for his physical disability. These integrations are difficult, specially if the pretraumatic or post-traumatic personality is distorted. The entire process of reorganization is even more complicated if speech has been impaired, for aphasia may constitute a greater handicap than hemiplegia. Under these circumstances, the brain-injured man has a much more limited choice of occupation and probably a more difficult task in learning and doing his job. The fact that the learned professions are not among the occupations of any of the men in this series may be evidence of this. It would appear that the general downgrading of these patients is such that only those with superior intelligence can adjust and perform at the work level of the normal individual with average intelligence. If the patient was originally endowed with average mentality, his chances for vocational rehabilitation are only fair, and, if the mental endowment was below normal, the outlook is indeed poor even under ideal circumstances of financial support and job training.

TABLE 3.—*Effect of Medication Taken in First Five Years After Injury in Controlling Seizures (Based on First 100 Cases)*

Medication	% of Patients	
	Controlled	Not Controlled
Phenobarbital	21.3	18.3
Diphenylhydantoin sodium	19.1	13.2
Combined*	44.4	50.9
None or inconstant medication	14.9	16.9

* Therapy with phenobarbital and diphenylhydantoin sodium.

Comment

Therapy.—In this analysis of post-traumatic epilepsy no mention has been made of the various therapeutic procedures, medical and surgical, that were employed in an attempt to control epilepsy. Rather this series of patients has been studied from an observational point of view, as if the various medical therapies were nonspecific, positive or negative stresses or strains applied to the organism. This view may be fallacious in that the course of the epilepsy may have been modified considerably by the various procedures applied. Certainly, only 15% of the group did not take some type of anticonvulsant medication, but these patients were about equally divided among those in whom epilepsy was controlled and those in whom it was not controlled. Similarly, the various medicaments were equally effective or noneffective in controlling attacks. Although it might seem from table 3 that phenobarbital and diphenylhydantoin sodium given independently were more efficacious than the two given together, this is a fallacious conclusion, since in most cases not responding to phenobarbital alone, therapy with diphenylhydantoin sodium was added, hence the conditions of cases treated by the combination of drugs had proved to be refractory to only one of the drugs when given alone.

Similarly, there are some 40 patients in this series who had early cortical resections of one type or another for epilepsy. These men have fared about as well as, but no better than, the entire group, 15 of the 33 surviving patients being free of seizures in the 5th to 10th year. Of course, these 33 were patients who had attacks despite anticonvulsive medication, so they might have been expected to have fared worse than the entire group if they had not had surgery.

In view of all these factors, it should be concluded that the data presented here show the natural history of post-traumatic epilepsy, influenced to some extent by the therapeutics of an era when phenobarbital and diphenylhydantoin were the anticonvulsant drugs of choice. That the course of post-traumatic epilepsy might be even more favorably modified by the greater number of anticonvulsant drugs currently available is quite probable.

A knowledge of the natural history of post-traumatic epilepsy may offer one explanation as to why various surgical procedures, such as cranioplasty and cortical resection, might be followed by an amelioration of seizures in approximately one-third of cases, especially if that procedure is done three years after the injury, i. e., about the time the condition is beginning spontaneously to regress.

In order to assess the true role of any therapeutic technique in post-traumatic epilepsy, complete data on the type and frequency of attacks from the time of injury to the time of medical or surgical treatment are essential on each successful case, so that some idea may be gained of the probable natural course in each instance.

Prognosis and Compensation.—In spite of a few isolated reports to the contrary,[8] the idea has permeated neurological literature that post-traumatic epilepsy carries a poor prognosis and that practically all patients who have a seizure after a head injury will be subject to chronic recurring convulsions for the rest of their lives. Penfield and Erickson[9] said in 1941: 'It may be said however, that, in cases where an objective lesion of the brain can be demonstrated as the cause of seizures, permanent disappearance of the attacks never occurs, either with or without medication, so far as our own clinical experience goes.' A similar but slightly qualified statement occurs in the superb monograph on epilepsy by Penfield and Jasper published in 1954[10]

This opinion has gained credence among some members of the legal profession who imply that a few dizzy spells or momentary blackouts after a head injury and an abnormal electroencephalographic finding are sufficient to establish the diagnosis of epilepsy with all the stigmas attached to the 'falling sickness and who, on this basis ask a large award to compensate their 'epileptic" clients for the recurrent seizures that will mar his or her future Such a contention is obviously false since neither these clinical manifestations nor abnormal brain waves are adequate for the diagnosis of a convulsive disorder per se

Some years ago, it was hoped that the electroencephalogram would be of diagnostic and prognostic import in post-traumatic epilepsy Experience has shown however, that the brain waves may denote cerebral damage but they do not reliably indicate or forecast the occurrence of convulsive complications Even with serial records over a period of months, such prognostication is usually difficult if not impossible The electroencephalogram may be a valuable aid, but the final diagnosis is based on the clinical manifestations and all auxiliary reports Because it is now recognized that epilepsy may take myriad forms, representing the entire gamut of nervous functions, the physician often finds it difficult to give a definite opinion before a court of law If there is a reasonable suspicion of attacks having occurred and it is feared that recurrent epileptic attacks may develop I believe that it would be fair to both the patient and the compensating agent to award, not compensation for post-traumatic epilepsy, but an insurance policy, which I am sure Lloyds would be willing to issue for a moderate premium, against the possibility of epileptic attacks developing within a reasonable time, say 5 or 10 years In closed injuries of the head, the total premium should be not more than 1% and in open cranial wounds not more than 10% of the face value of the policy If the patient does develop seizures he will be compensated, but if he doesn't, he will not have been given a stigmatic label and the primary compensating agency will not have been penalized

Even if post-traumatic seizures do develop, it should be clearly understood that they do not have the same prognosis or implications as so-called idiopathic epilepsy In fact, if within the first year or two after a head injury a patient has had only one or two attacks, I would question the advisability of labeling the condition post-traumatic epilepsy and would certainly hesitate to suggest that it be compensated for on that basis Probably some type of epilepsy insurance would be the most equitable means of handling such a case Certainly, this study indicates that, for at least 10 years, such persons have an excellent chance of living a life not punctuated by epileptic seizures

Summary

A series of 244 patients with post-traumatic epilepsy has been followed for 10 years after the occurrence of their head injuries In patients with post-traumatic epilepsy, mortality and morbidity rates are higher in the first 10 years after their injury than those in normal individuals The work status of men with post-traumatic epilepsy appears to correlate more closely with intelligence than with the frequency of seizures or the neurological deficit

With the therapy in vogue a decade ago more than a third of the group of patients with post-traumatic epilepsy were free of attacks from the 5th to the 10th year after injury This freedom from attacks is not necessarily related to the anticonvulsive medication for more than half of the men were taking no drugs

Favorable prognostic factors were found to be early cessation of attacks low frequency of attacks, and strangely severe neurological deficit The cases in which seizures developed early in this series did not seem to be more likely to regress than the ones in which they developed late, but this might have been due to the selection of cases which tended to exclude the favorable early epilepsies in which seizures developed immediately after injury Improvement is manifested by elimination of attacks or by a shift from major to minor episodes

In evaluating the disability of an individual, the total picture must be examined, for the disturbance is more than the sum of hemiplegia and epilepsy An equitable means of compensating persons with potential and actual cases post-traumatic epilepsy by insurance might involve insurance against the disease rather than immediate compensation

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INTRAMUSCULARLY ADMINISTERED IRON IN THE TREATMENT OF IRON-DEFICIENCY ANEMIA

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Iron preparations for parenteral administration have been available for years However, with their use the incidence of toxic reactions was so great that this form of treatment for patients was not considered worthwhile until Nissim [1] reported in 1947 on the intravenous administration of a saccharated iron oxide in the treatment of hypochromic anemia Since then a number of such reports have been published,[2] and it is now well accepted that these intravenously given preparations are effective and relatively safe for the treatment of patients with iron-deficiency anemia More recently, a medicament suitable for intramuscular administration [3] has been developed, and it is the purpose of this report to submit results obtained in the treatment with intramuscularly given iron of 10 patients who had iron-deficiency anemia My primary interest in carrying out this study was to determine whether this intramuscular preparation was absorbable, hematologically potent, and safe My indications for parenteral treatment are outlined elsewhere [4]

• *An iron preparation was administered intramuscularly to 10 patients with hypochromic anemias, most of them caused by persistent gastrointestinal or genital bleeding The erythrocyte counts ranged to values as low as 2,500,000 per cubic millimeter, hemoglobin as low as 3 0 gm per 100 cc , and serum iron as low as 15 mcg per 100 cc The preparation used contained 50 mg of iron per cubic centimeter Injections were given twice daily into the gluteal area, and each injection consisted of 2 cc of a menstruum containing altogether 100 mg of iron The total dose of intramuscularly given iron element ranged from 750 to 2,000 mg The injections did not cause either local pain or systemic reactions, but did result in reticulocytosis and rise in hemoglobin level This experience demonstrated that the desired hematinic effect of iron can be obtained without either local or general toxic effects by proper choice of dosage form*

Method

The therapeutic agent used is known as Imferon and is reported to be a stable nonirritant solution of iron-dextran complex, with a low molecular weight and a pH of 6, containing 50 mg of elemental iron per milliliter [5] The dosage schedule decided on was the same as the one I use for administering iron intravenously in the treatment of selected patients who have iron-deficiency anemia, that is, 25 mg of elemental iron per 1% deficiency in hemoglobin concentration, assuming 100% to be normal This dosage has been exceeded in some cases in which it seemed reasonable to presume that the iron stores were markedly depleted

Ten patients with moderate to severe iron-deficiency anemia of varying causes were given iron (Imferon) intramuscularly as the sole therapeutic agent during the course of the observations reported The results of treatment are given in the table It is clearly apparent that each patient treated did absorb the iron injected intramuscularly and that each patient did have a hematological response, as evidenced by a rise in the hemoglobin concentration and by an increase in the reticulocyte count For varying reasons, most of which stem from problems related to the type of practice engaged in at the Mayo Clinic, serum iron levels before and after treatment, cell volume determinations, and daily reticulocyte counts were not always obtained, but, in cases in which these were obtained, the data are tabulated All laboratory tests were made through routine channels and by the general technicians at the Mayo Clinic Peripheral blood smears were reviewed before and after each course of treatment

Among these 10 patients there was a total of 13,850 mg of iron administered intramuscularly in 139 separate injections There was not a single toxic reaction, either general or local In all except one instance, each dose consisted of 100 mg of elemental iron contained in 2 ml of a menstruum injected into the gluteal muscles In the one exception 1 ml or 50 mg was given in a single dose In most instances the patient received an injection twice a day, the injection being made into one gluteal area in the morning and into the opposite gluteal area in the afternoon This particular schedule was carried out for economical and temporal reasons, dictated by the fact that almost all patients were nonresidents of the area The schedule agreed on, however, proved satisfactory to all Not a single complaint was voiced by any patient about local or other distress in spite of the frequency of injection Several patients stated that the injections were less painful than intramuscularly given penicillin injections that they had received sometime in the past Those patients who had previously received intravenously administered iron preferred the intramuscular injections

A brief summary of five illustrative cases follows (The hematological data are summarized in the table and are not repeated here)

Report of Cases

CASE 1 (Poor Response to Previous Orally Given Medicaments) —A 42-year-old man was first noted to be anemic in 1952 when the Red Cross refused his blood donation He was given repeated courses of orally given iron with varying but poor response until 1954 From 1954 until he was first seen at the Mayo Clinic in March, 1956, he received a proprietary hematinic containing iron without any specific effect The results of physical examination were not remarkable The findings

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From the Section of Medicine, Mayo Clinic and Mayo Foundation The Mayo Foundation is a part of the Graduate School of the University of Minnesota on serologic test for syphilis, serum bilirubin determination, guaiac test for occult blood on three separate stool examinations, analysis of gastric contents, and roentgenograms of the chest, the esophagus, stomach, and duodenum, the small intestine and the colon were all negative or within normal limits.

Results of Treatment with Intramuscularly Given Iron in Ten Patients with Iron-Deficiency Anemia

Case No	Age Yr and Sex	Diagnosis	Total Dose of Intramuscularly Given Iron Mg	Day from First Injection	Erythrocytes Millions/Cu Mm	Hemoglobin Gm /100 Cc	Hematocrit %	Reticulocytes %	Serum Iron Mcg / 100 Cc	Findings on Blood Smear
1	49 M	Hypochromic anemia of indeterminate cause	1 200	—1	3 07	7 9	29	1 6	24	Hypochromic
				7				4 9		
				10		9 0	34			
				69	4 05	10 6				
				160	4 61	13 0				Normal
2	52 F	Postsurgical anemia	750	—4		8 0		1 1	37	Hypochromic
				9		10 8		1 4		Microcytes improved
3	45 F	Chronic menorrhagia cervical polyp	1 300	—2	3 97	7 0		1 8	19	Hypochromic microcytic
				9		8 0		3 3		
				10		7 3		4 0*		
				12				3 2		
				45		9 8				
				78		11 3			33	Almost normal
4	47 F	Severe menorrhagia	2 000	—1	3 50	4 6	22	1 4	43	Severely hypochromic
				6				4 3		
				7				4 7		
				9				5 9		
				10				5 8		
				11				6 0*		
				23	4 90	9 8		3 7		
				37		11 5	45	1 1	74	Marked improvement
				71		11 9	45			
5	63 F	Chronic intermittent gastrointestinal bleeding of indeterminate cause	1 800	—1	2 50	6 0		9 3	49	Severely hypochromic
				8				16 4		
				10				15 8		
				11				17 0		
				17	3 00	9 2		13 7	88	Considerable no of normal erythrocytes
6	41 F	Functional menorrhagia	1 200	—1	4 40	8 4		0 8		Hypochromic
				9				3 0		
				14		10 1				Marked improvement
7	67 F	Poor absorption and probable gastrointestinal bleeding	1 400	—1	3 20	7 6		1 4	15	Hypochromic microcytic
				9				5 1*		
				10				3 8		
				11				4 4		
				14	3 00	7 7		4 0		
				27	3 20	8 4		2 2	27	Hypochromic little change
8	73 M	Gastrointestinal bleeding of indeterminate cause	1 400	0	4 80	9 7	33	0 9		Hypochromic
				6				2 4		
				7				1 6		
				8	5 10	10 2	39	2 8		
				11				4 7*		
				12				4 3		
				13				4 4		
				14	4 20	10 4	40	4 2		Hypochromic but appears to be less than before
9	35 F	Indeterminate	1 300	0	4 90	7 6	30	1 1	81	Microcytic hypochromic
				20	4 60	9 6	36	3 2*		
				27		9 7	37			
				91	4 50	11 0		0 7	84	Little hypochromasia
10	42 M	Gastrointestinal bleeding of indeterminate cause	1 500	0	4 40	7 3	33	1 6	35	Hypochromic
				7				3 1		
				8				3 0		
				11				4 9*		
				12				4 0		
				13				3 3		
				14	5 30	8 6	40	3 8		
				39	5 90	11 5	48	1 9		Only scattered hypochromasia
				76		11 2				

* Maximal reticulocyte count observed

The blood group was A and the Rh factor was positive. Disappearance rate into the stools of intravenously injected erythrocytes tagged with radioactive chromium (Cr^{51}) was checked on five occasions. This was according to the procedure of Cooper, Stroebel, and Owen.[8] Three stools were negative, one stool was found to show loss of 21 ml. of blood and one stool 6 ml. The bone marrow was hyperplastic and normoblastic, and iron stains of fixed sections of the bone marrow were negative. It was assumed that the patient was losing blood into the gastrointestinal tract from an as yet unidentified lesion. Abdominal exploration was advised but was declined by the patient.

Case 2 (Probably Depleted Iron Stores).—A 52-year-old woman underwent right hemicolectomy with resection of a portion of scarred ileum for a grade-2, mucus-producing carcinoma of the ascending colon in July, 1954, subsequent to which persistent severe diarrhea developed. Periodic follow-up examinations were satisfactory until February, 1956, when a hemoglobin concentration of 7 3 Gm. per 100 ml. of blood was noted After six weeks of therapy with a hematinic, there was no change, so that on April 20, 1956 the entire gastrointestinal tract was reexamined at abdominal exploration, and no cause for the anemia was found The patient was then given intramuscular iron on the basis of possibly depleted iron stores, probably resultant from interference with iron absorption (diarrhea plus intestinal resection) and possibly repeated blood loss secondary to this condition

Case 3 (Intolerance of Orally Given Iron)—A 45-year-old woman had been refused as a voluntary donor at her local blood bank because of anemia She was given iron orally by her local physician but after several attempts to take the medicaments, she stopped because of persistent nausea She had had a known menorrhagia for 10 years On examination at the Mayo Clinic in April, 1956 a small fibroid uterus and a cervical polyp were noted Polypectomy was performed and examination by the pathologist revealed the polyp to be benign Cytological examination of a cervical smear for malignant cells was also negative Roentgenograms of the stomach small intestine, and colon were negative as was examination of two stools for occult blood Proctoscopic examination and analysis of gastric contents were also normal The blood group was O, and the Rh factor was positive

Case 4 (Severe Anemia in Which Maximal Response in Minimal Time Seemed Desirable)—A 47-year old woman with a five-year history of menorrhagia was examined in the early part of 1956 Her general appearance suggested myxedema or more specifically chlorosis There was a mottled, pale greenish yellow appearance to the skin of the face and definite but slight pitting edema of the forehead The spleen was palpable 1 fingerbreadth below the left costal margin on inspiration The findings on serum bilirubin, protein-bound iodine and blood urea determinations on the sulfobromophthalein liver-function test on analysis of gastric contents on examination of stools for occult blood, and on roentgenograms of the chest esophagus *stomach and duodenum small intestine and colon* were all negative or within normal limits The basal metabolic rate was +18% After completion of the patient s treatment with intramuscularly given iron, her general appearance had turned to normal, the edema had subsided the spleen was no longer palpable and she stated that it had been years since she felt so well

Case 5 (Intramuscularly Given Iron as a Palliative Treatment Only—Comparison with Other Parenteral Therapy)—A 63 year-old single woman who had recurrent hypochromic anemia secondary to indeterminate gastrointestinal bleeding was first found to have anemia in 1952 She had repeatedly refused surgical exploration She also suffered from chronic rheumatic endocarditis with mitral stenosis and recurrent congestive heart failure postsurgical hypoparathyroidism since 1953, and rheumatoid arthritis These complications have been treated as indicated from time to time She had received iron intravenously on four separate occasions in the past prior to intramuscular therapy with good response each time She had also periodically taken iron orally, with incomplete and unsatisfactory response

1 In 1952 she received 650 mg of an iron preparation intravenously Therapy was stopped because of moderate reaction characterized as severe flushing lumbar backache and arthralgia which lasted only a few hours Her hemoglobin level rose from an initial level of 6 0 Gm to 8 6 Gm per 100 ml in 15 days, with a maximal reticulocyte response of 8 8%

2 In February, 1953, she received 1,500 mg of a different iron preparation (Astrafer) intravenously without reaction At this time her hemoglobin level rose from 6 2 Gm to 10 2 Gm per 100 ml in three weeks and then to 12 1 Gm after eight weeks, with a maximal reticulocyte response of 8 2%

3 In February, 1954 1 500 mg of iron (Astrafer) was again given intravenously without reaction and the hemoglobin level rose from 6 0 Gm to 8 2 Gm per 100 ml of blood in eight days After 38 days it was 11 2 Gm per 100 ml

4 In January, 1955, 1 400 mg of iron (Astrafer) was given intravenously The initial concentration of hemoglobin of 4 8 Gm rose to 11 3 Gm per 100 ml of blood after 28 days

In January, 1955, the serum iron level was less than 25 mcg per 100 ml of blood After the intravenous administration of radioactive iron (Fe^{59}) the patient s stools were collected for a period of 30 days and assayed for their content of Fe^{59} At first findings in the stools were negative, then radioactivity estimated to be as high as that contained in 95 ml of blood in a single day s specimen appeared The total loss of blood into the stools was calculated to be 891 ml during the period of observation Thus, quantitative as well as objective evidence of blood loss from the gastrointestinal tract was demonstrated

In this case, there were normal findings on analysis of gastric contents, a negative sulfobromophthalein liver function test, numerous stools that were positive on the guaiac test for occult blood, a negative proctoscopic examination, and normal findings on roentgenograms of the stomach on five occasions of the colon on two occasions, of the small intestine on one occasion, and on an excretory urogram

The patient s surgical history revealed a tonsillectomy in 1917, a thyroidectomy for exophthalmic goiter in 1922, an appendectomy for acute appendicitis in 1950, and a simple mastectomy for localized grade-1 papillary intraductal carcinoma in 1955

This patient's response to intramuscularly given iron was satisfactory and is documented in the table

Although this patient has always responded well to parenterally given iron, it is important to recognize that this is not ideal treatment The treatment of choice in all such cases is to remove the cause of the iron-deficiency anemia when and if possible It is easy to see that, with a satisfactory response to treatment with parenterally or orally given iron, a significant lesion can be overlooked In this case a definite lesion has not been demonstrated, but it is certain that one is present The repeated positive reactions for occult blood noted in the stools while the patient was on a meat-free diet, the radioactive-iron study cited, the periodic fall in the hemoglobin level, and the response to therapy prove this beyond a reasonable doubt It is also logical to expect that there is a good chance that this patient's lesion would be found by surgical exploration of the abdomen, but laparotomy has been refused repeatedly by the patient

Comment

The results of the serum iron determinations that were made in these cases show considerable variation and may reflect the innate problems relative to this particular test, but in every case the initial serum iron level was consistent with an iron-deficiency anemia The normal value for serum iron recognized at the Mayo Clinic is 60 to 150 mcg per 100 ml of blood In case 7 it is obvious that during the period of observation not enough iron was administered or absorbed from the sites of injection to correct the low hemoglobin level and that, consequently, the treatment was unable to bring the serum iron level up to normal

In case 3 enough iron apparently was available to bring the hemoglobin value near normal, but the serum iron was still below a normal level It is possible that the iron stores of the patient were still deficient and more iron was indicated, or perhaps the determination of serum iron was not valid This latter seems unlikely, for, in general, what errors are made tend to show levels greater than the true value There was, however, a definite increase in the serum iron level parallel with the elevation in hemoglobin concentration In cases 4 and 5, the initial serum iron level was much greater than that anticipated for the degree and duration of anemia We have no explanation for this fact other than the possibility of a technical error Yet, in both these cases, the serum iron levels after treatment were greater and were well within normal limits It always is important to recognize that iron is very wide in its occurrence, and this very fact alone is the major problem in obtaining accurate laboratory determinations of serum iron Because of the special preparation of all equipment prior to the determination of the serum iron level, we feel that the accuracy of the results obtained is comparable to that in other laboratories

Conclusions

On the basis of 10 patients with iron-deficiency anemia studied, it would appear that the following conclusions can be made 1 An effective iron preparation for intramuscular injection (Imferon) is now available 2 To date this intramuscularly given iron preparation has been found to be free from any toxic reactions, either local or systemic 3 Patients prefer this mode of administration over intravenous administration 4 The hematological response is satisfactory It appears that the hemoglobin response is a little slower with intramuscularly than with intravenously given iron when the same dosage schedule is followed The response possibly may be augmented when the dose is increased 5 Parenterally given iron is not a substitute for orally given iron as a routine treatment for iron deficiency anemia However, parenterally given iron is a valuable addition to the therapy available in certain selected cases 6 When therapy with parenterally given iron is desirable, it would seem that intramuscularly given iron is preferable to intravenously given iron if for no other reason than that all intramuscularly given preparations are preferable to intravenously given ones when the clinical response is comparable because of the innate potential dangers of any intravenous therapy In addition, there were no reactions of any sort to the intramuscularly given iron preparation used, in contrast to some minor reactions experienced with intravenously given iron

The intramuscularly given iron preparation used in this study was supplied as Imferon by Benger Laboratories, Ltd Holmes Chapel, Cheshire, England, and Lakeside Laboratories Inc Milwaukee

The intravenously given iron preparation (Astrafer) was supplied through Mr B F Jalar of Astra Pharmaceutical Products Inc, Worcester Mass

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Undescended Testis —There is universal agreement that a testis which resides in a position outside of the scrotum after puberty will have great deterioration of its spermatogenic power, and that there will be little or no return of spermatogenesis if such a testis is placed in the scrotum thereafter These facts have led to the widespread acceptance of the idea that treatment of an undescended testis should not be delayed beyond the age of 11 or 12 years Since 1950 *investigators have made histologic comparisons between testes that are undescended* and those that are residing normally in the scrotum, making observations on infants and boys of all age groups There is reasonably close agreement among most of these authors regarding the histologic sequences that can be found Except for the occasional testis that is obviously grossly deformed or atrophic, it can be said in general that until the age of 5 years there are only minor differences between the undescended organ and the normally descended one From 5 years onward to puberty, there is a definite lag of enlargement of tubules in the undescended testicle when compared to the prominent increase in diameter of tubules of a normally placed testis These findings have led some to suggest that it is imperative to operate before the age of 5 years on all boys with undescended testes This reasoning is somewhat fallacious, because it *is quite conceivable that a testis that is transplanted to the scrotum after the fifth year* (but before puberty) can catch up in its development and can become a very satisfactory gonad Furthermore, no one has presented any subsequent studies to prove that operation in the earlier years (before 5 or 6) is followed by results any better (from the standpoint of fertility) than those that have been obtained in patients operated on during the prepubertal years Since *it is technically much easier and safer to perform an orchiopexy on larger individuals, there is* considerable justification for continuing the practice of advising therapy somewhere between the ninth and eleventh years —R E Gross, M D, Surgical Management of the Undescended Testicle, *International Record of Medicine and General Practice Clinics,* June, 1956

BENIGN MASSETERIC HYPERTROPHY

A SYNDROME OF IMPORTANCE IN THE DIFFERENTIAL DIAGNOSIS OF PAROTID TUMORS

Richard T Barton, M D, Los Angeles

• *The possibility of hypertrophy of the masseter muscle as a result of abnormal use is illustrated by two case histories A young woman had consulted many doctors because of a painless swelling below and anterior to the left ear It was found to be caused by an extraordinary amount of grinding of teeth, which continued during sleep and had visibly worn down her teeth A man whose complaints were earache and swelling about the jaw was found similarly to give both subjective and objective evidence of habitual grinding The possibility of a benign hypertrophy of this sort must be kept in mind, because in one case there had been fear of a tumor and in the other a diagnosis of external ear infection had been made*

The masseter muscle is the major muscle of mastication, arising from the zygomatic arch and inserting along (completely covering) the ramus of the mandible It is crossed by both the parotid duct (fig 1*A*) and branches of the facial nerve However, the significant relationship, as far as this discussion is concerned, is the relationship of the parotid gland and masseter muscle Enlargement of either (fig 1*B* and 2) may lead to confusion in the diagnosis of neoplastic or inflammatory processes in this area[1] The enlargement of the masseter muscle gives the appearance of a tumor above the angle at the mandible[2] It is my purpose to describe the syndrome of benign masseteric hypertrophy

Clinical Types

There are two types of this muscular hypertrophy First, there is a congenital or familial type in which the muscle stands out because of a thin or bony face, giving a "chipmunk' look, or it may seem as though the auricles are closely adherent to the head In these cases, asymmetry of the bite, abnormal chewing habits, and changes in roentgenographic appearance are less frequently found

Patients with the second type, which is acquired, are typically tense and habitually clench or grind the teeth in their sleep The acquired condition is the type most often confronted by the physician An etiologically significant primary malocclusion or a secondary wearing down of the teeth surfaces may be found The syndrome may be unilateral or bilateral and may result in a lateral "flaring' of the mandible due to abnormal tension from the muscle When the condition occurs unilaterally, the facial appearance and distortion of the mandible as shown by x-ray may be alarming Occasionally, in the unilateral cases, there may be a lack of chewing surface due to missing teeth, requiring the patient to chew only on the hypertrophied side This symptom complex has been reported also in individuals who "cradle' their jaws in the hand while reading, displacing the mandible laterally and placing an imbalance on the two masseter muscles[3]

Report of Cases

The following case presents an example of the syndrome and the confusion in diagnosis it may cause

Case 1 —An 18-year-old female college student was first seen in consultation by me on March 22, 1956, regarding a complaint of a painless swelling below and anterior to the left ear She had consulted many doctors in the previous five years, since the condition had become apparent and had undergone x-ray studies, sialography, complete medical examination, aspiration of the mass, and even an exploratory operation with biopsy at a large university student health service With these extensive studies, the patient who admittedly had been terribly tense at the beginning became steadily more nervous, was unable to sleep or study and went from one college to another hoping to make acceptable grades

Examination revealed an enlargement over the angle of the jaws that was more pronounced on the left than the right and extended from the lower border of the mandible upward to the zygoma (fig 3) It was moderately soft poorly demarcated, and did not swell with eating Clenching the teeth made it more prominent With pressure, the parotid duct yielded clear

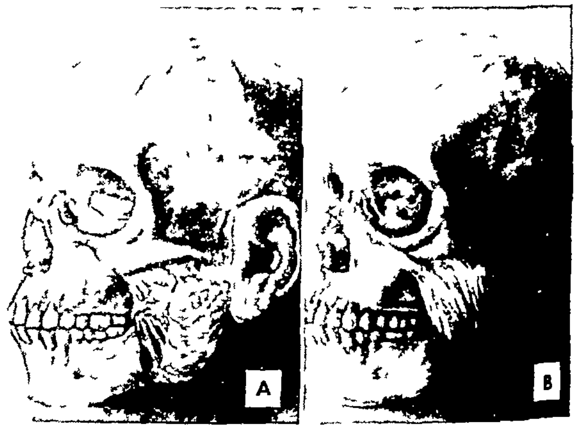

Fig 1 —*A*, intimate relation of parotid duct and gland to masseter muscle *B*, normal masseter muscle attached to mandible and zygoma and functioning as muscle of mastication

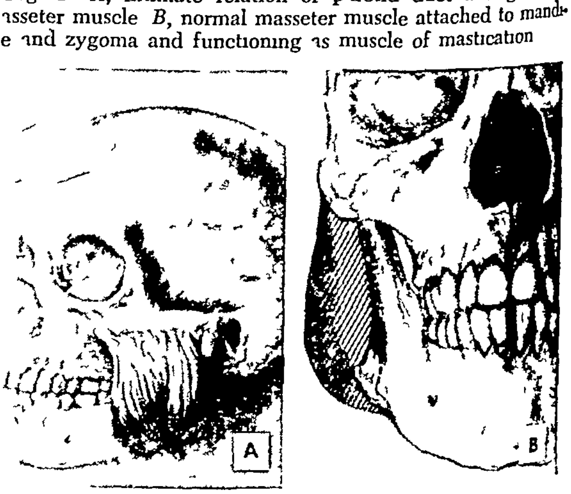

Fig 2 —*A* enlargement typical of benign masseteric hypertrophy simulating a parotid tumor *B*, diagrammatic anterior view of normal and hypertrophied masseter

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Associate Consultant in Otolaryngology, University of California at Los Angeles saliva there was no cervical adenopathy Examination of the teeth revealed that they had been worn down severely On further questioning it was learned that the patient ground her teeth so severely in her sleep that no one in the dormitory would share rooms with her The diagnosis of benign masseteric hypertrophy was made

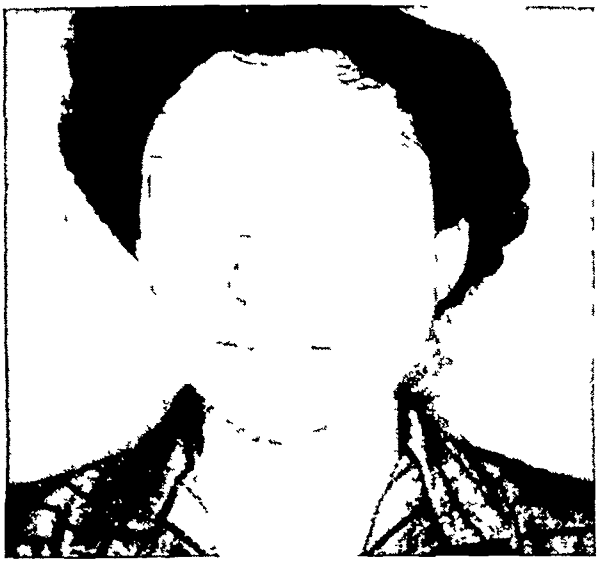

Fig 3 —Typical appearance of benign masseteric hypertrophy in patient Condition had been diagnosed as possible parotid tumor

In patients suffering from this syndrome, the condition has been diagnosed as parotitis, parotid tumor, lipoma, rhabdomyoma, and even otitis externa (when associated with pain) If the patient has a malocclusion and temporomandibular arthralgia, he may experience pain which is usually localized over the temporomandibular joint As an example, such a case is presented below

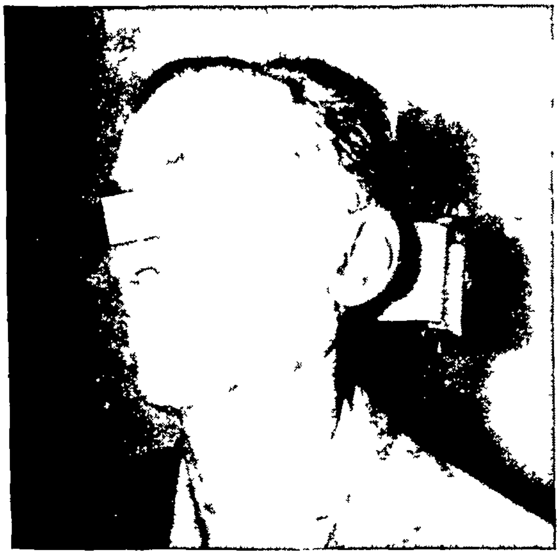

Fig 4 —Patient with condition that had been diagnosed as external otitis Final diagnosis of benign masseteric hypertrophy was made

Case 2 —A 42-year-old film editor was referred to me because of earache and swelling of the face of two months duration He had been under enormous stress and was aware that while working he clenched his teeth as a nervous habit He became unable to wear a headset because of the pain in his left ear when he moved his jaw His family physician had given a diagnosis of external ear infection

Examination failed to reveal any abnormality of the external ear or tympanic membrane There was a diffuse swelling inferior and anterior to the left auricle, with marked tenderness over the temporomandibular joint but not the tragus (fig 4) X-rays revealed a flaring of the inferior border of the mandible (fig 5), and dental consultation confirmed a marked malocclusion and abnormal wear of the teeth due to habitual grinding The diagnosis of benign masseteric hypertrophy with malocclusion and temporomandibular arthralgia was made

Treatment

Proper therapy is oftentimes no more than reassuring the patient that there is no tumor or abnormality When the condition is explained, many of the associated complaints disappear with or without sedatives, antispasmodics, or tranquilizers Naturally, the restoration of the bite to normal is essential, and in certain instances various dental prostheses are required These may be employed to provide adequate occlusal surface or to prevent grinding habits

Comment

In the past 10 years, while serving on five tumor boards, I have seen more than 30 cases of the syndrome of benign masseteric hypertrophy Various diagnoses, such as mixed tumor of the parotid, lipoma, and rhabdomyoma, had previously been given The patients had undergone extensive examination, hospitalization, and even isolation Some had submitted to surgical exploration It is important for all physicians and dentists dealing with this anatomic area to be aware of this syndrome, in order to avoid psychologically damaging and unwarranted diagnostic procedures

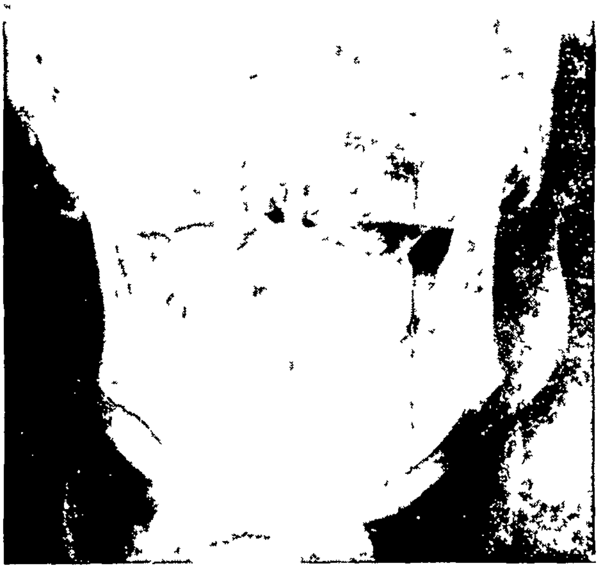

Fig 5 —X-ray of mandible showing lateral flaring of inferior border due to excessive pull of masseter muscles

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Figure 3 was supplied by Dr Frederick M Turnbull Jr Los Angeles

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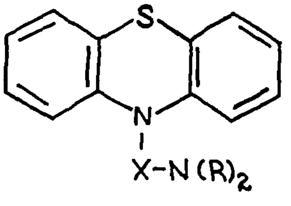
PROMETHAZINE (PHENERGAN) HYDROCHLORIDE AS AN ADJUNCT TO ANESTHESIA

PRELIMINARY CLINICAL AND ANIMAL STUDIES

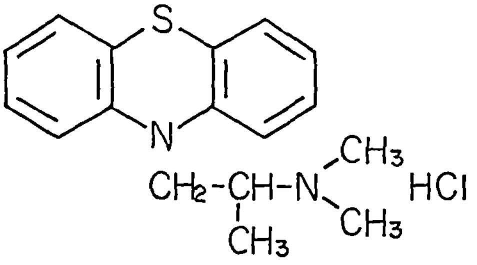
Geraldine A Light, M D, E Trier Morch, M D, Ph D, Rose Engel, M D
and
John J Cunningham, M D, Chicago

• Promethazine was given to 104 surgical patients under various conditions to test its possibilities in anesthesiology It was administered either intramuscularly or intravenously in doses of 1 mg per kilogram of body weight up to a total of 25 mg in children or in total doses of 25 to 50 mg in adults These doses proved to be inadequate or unreliable as the sole preanesthetic medication, but increased the sleepiness in 38 out of 43 patients when given in addition to routine premedication such as morphine and scopolamine Used in conjunction with meperidine and with or without chlorpromazine as a premedication in 25 children before diagnostic procedures, it caused all to fall asleep promptly and eliminated the need of supplementary anesthesia in 13 Evidence of usefulness in other situations was also obtained, especially in the prevention of postoperative nausea, vomiting, and excitement, and in the prolongation of the relief afforded by opiates in patients with malignancies The doses required to produce these effects in man, when calculated on the basis of body weight, were much less than the doses found lethal to 50% of laboratory mice and dogs

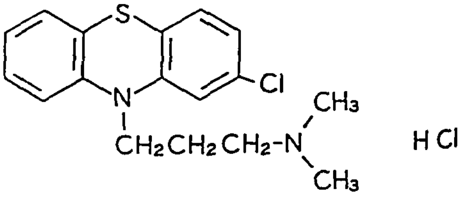
Promethazine (Phenergan) hydrochloride, the most potent antihistamine of the phenothiazine group, was originally reported on in 1946 by Halpern and Ducrot [1] Burn [2] states that the story of chlorpromazine (Thorazine, Largactil) hydrochloride and promethazine really began with Dawes,[3] whose study of synthetic substitutes for quinidine led to the investigation of these compounds Their pharmacological properties and clinical applications have been studied extensively both in the Americas and in Europe Chauchard and Chauchard,[4] Hutcheon,[5] Kopera and Armitage,[6] Weese,[7] and Winter [8] are only a few of these investigators The exact mechanism of the effects of these drugs has yet to be clarified Their actions are legion [9] The most spectacular use is in conjunction with hypothermic techniques, but it is quite likely that some effects, such as the potentiation of narcotics and the prevention of nausea, may be of more lasting significance Chlorpromazine, ethopropazine (Parsidol) hydrochloride, Lisergan [N (β-dimethylaminoethyl) phenothiazine hydrochloride], diethazine hydrochloride (Diparcol), promazine, and promethazine are all phenothiazine derivatives and have the same general formula



The X represents a divalent carbon chain and the $N(R)_2$ an aliphatic amine Promethazine [N-(2 dimethylamino-2-methyl)ethylphenothiazine hydrochloride] is represented as follows



Chlorpromazine [10-(3 dimethylaminopropyl) 2 chlorophenothiazine hydrochloride] is represented as follows



A multiplicity of actions has been reported for this group and chlorpromazine is the most potent in all except the antiacetylcholine and antihistaminic effects In these respects, promethazine is the most potent of the series (Kopera and Armitage [6]) The purpose of our study was to evaluate promethazine clinically as a sedative as a potentiator of the barbiturates and opiates, and as an antiemetic drug

Clinical Studies

Clinical trial of promethazine was conducted over a period of nine months in 104 surgical patients to investigate the value of the compound for (1) preanesthetic medication (*a*) as the only premedicant and (*b*) in combination with routine premedication or (*c*) with chlorpromazine and meperidine hydrochloride, (2) sedation during operation under spinal, regional, or local anesthesia, (3) potentiation of general

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From the Department of Surgery, Division of Anesthesiology, the University of Chicago Clinics anesthetics, (4) prophylaxis of postoperative nausea and vomiting, (5) treatment of postoperative nausea and vomiting, (6) control of postoperative excitement, and (7) prolonged relief of pain—in combination with methadone hydrochloride or morphine The patients ranged in age from 7 months to 75 years

Adults received doses of from 25 to 50 mg, and children received 1 mg per kilogram of body weight up to 25 mg Preoperatively, the compound was administered intramuscularly In the operating room and recovery room it was given by vein

Preanesthetic Sedation —Five patients received 25 to 50 mg of promethazine alone as preanesthetic sedation before surgery In four cases, it produced no sedative effect In the fifth patient, however, an apparently heavy sedation was obtained This patient was a 16-year-old boy who had received 90 mg of phenobarbital sodium by mouth, not as premedication but coincidentally About one hour later, 50 mg of promethazine was injected intramuscularly Within 10 minutes, the boy had fallen into an apparently sound slumber and only grunted in response to questioning, without opening his eyes

Forty-three patients received from 25 to 50 mg of promethazine before or simultaneously with the routine preoperative medication, usually morphine sulfate (5 to 15 mg) or meperidine (20 to 100 mg) with scopolamine (Hyoscine) hydrobromide (0 1 to 0 4 mg) The results were excellent (very sleepy or asleep) in 5 patients (12%), good (moderately drowsy) in 26 (60%), fair (slightly drowsy) in 7 (16%), and poor (no apparent additive effect) in 5 (12%)

Postoperative drowsiness was prolonged in most of these patients, particularly if the operative procedures were brief, so the time in the recovery room was extended as much as from two to three hours over the average time in similar cases The incidence of postoperative vomiting in this group was as follows No postoperative emesis occurred in 34 patients (79%), and vomiting occurred once in 7 (16%) and was prolonged in 2 (5%), for two and five days respectively There were no patients who vomited twice or only several times

Promethazine in combination with chlorpromazine and meperidine was used for premedication in 25 infants and children before diagnostic procedures, such as cardiac catheterization, myelogram, pneumoencephalogram, and roentgenograms of the skull For 22 of this group the dosage was 1 mg of promethazine, 1 mg of chlorpromazine, and 2 mg of meperidine per kilogram of body weight For three of the children, a double dose of the promethazine was substituted for the chlorpromazine, with results comparable to those with premedication with the three drugs This premedication satisfied both surgeons and anesthesiologists All the patients were asleep on arrival in the operating room, but some responded to pain No supplementary anesthesia was required in 13 patients A rectally given anesthetic agent, tribromoethanol (Avertin) or a thiobarbiturate, was required in five patients, trichlorethylene in two patients, nitrous oxide–oxygen in two patients, and an intravenously given thiobarbiturate in three patients Except in the case of intravenously given thiamylal (Surital) sodium, the necessary dosages of these agents were not appreciably reduced

Sedation During Spinal, Regional, and Local Analgesia —Promethazine was given intravenously in doses of 25 mg to seven patients for sedation during spinal, regional, and local analgesia All fell asleep promptly, but they could be readily aroused One of these patients was undergoing a prolonged surgical procedure while under continuous spinal analgesia and became quite nauseated during the operation After the administration of two 25-mg doses of promethazine, he remained quietly asleep and experienced no more nausea Postoperative sedation was not unduly prolonged

Adjunct to General Anesthesia —Promethazine seemed to reduce the amount of the general anesthetic agent required This effect was especially noticeable with the intravenous administration of the barbiturates

Prevention of Postoperative Nausea and Vomiting —Nine patients with a definite history of postoperative nausea and vomiting after previous surgery received 25 mg of promethazine intravenously immediately before or during surgery The therapy was successful in all instances Anesthetic agents given this group included ether, barbiturates, and the gases

Treatment of Existing Postoperative Nausea and Vomiting —Promethazine was given intravenously in doses of 12 5 mg to 25 mg to 11 patients in the recovery room These patients were awakening and vomiting in the recovery room None of them had received promethazine as part of the preoperative medication In 10 patients (90%), nausea was completely relieved, and one patient had no relief The medicament caused drowsiness and prolonged the stay in the recovery room

Control of Postoperative Excitement —Wild postoperative excitement was controlled in two patients by promethazine in doses of 25 mg and 12 5 mg, respectively, given by vein Both patients became quiet in a few minutes, slept briefly, and awoke calmly about 10 minutes later

Prolonged Relief of Pain —The intense and constant pain of inoperable malignancy suffered by two patients had not been relieved by large and frequent doses of opiates One patient, after the combination of 12 5 mg of promethazine with 10 mg of methadone hydrochloride or 100 mg of meperidine was administered every six hours, remained comfortable for several months until his death from the disease Another patient had previously received doses of 15 mg of morphine every three hours, with very little relief After the administration of promethazine, 12 5 mg with 10 mg of morphine every four hours, the pain was adequately controlled It is our impression that promethazine prolongs and intensifies the effects of narcotics, and it appears to exert a greater potentiating action on morphine than on meperidine

Laboratory Studies

A series of animal studies was conducted to determine the toxicity of promethazine Four dogs were anesthetized with thiopental sodium, and respiration was maintained by a mechanical respirator The arterial blood pressure and the electrocardiographic and electroencephalographic readings were *recorded* (fig 1 and 2) The first dose of promethazine was 0 5 mg per kilogram of body weight given intravenously At intervals of a few minutes, double the dose was given until the animals died, after the administration of 50, 64, 70, and 80 mg per kilogram of body weight respectively The lethal doses were 100 times the clinical doses

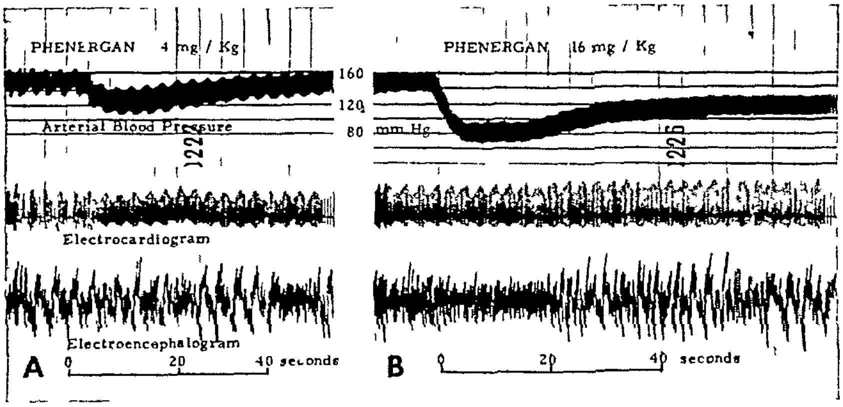

Fig 1—Graph of arterial blood pressure in dog, with electrocardiographic and electroencephalographic tracings, showing, *A*, that, after the administration of 4 mg of promethazine per kilogram of body weight, blood pressure level dropped from 165 to 140 mm Hg but returned to original level in 30 seconds, and, *B*, that, after the administration of 16 mg per kilogram of body weight blood pressure level dropped more but rose again in 40 seconds

The electroencephalographic and electrocardiographic tracings showed no change until 16 mg of promethazine per kilogram of body weight was given Then the electrocardiogram showed very minor changes, and the encephalogram showed first a stimulation and then a depression

After the intravenous injection of promethazine in isotonic sodium chloride solution in 80 mice, the LD_{50} was established at approximately 30 mg per kilogram of body weight, which again corresponds to many times the clinical dose

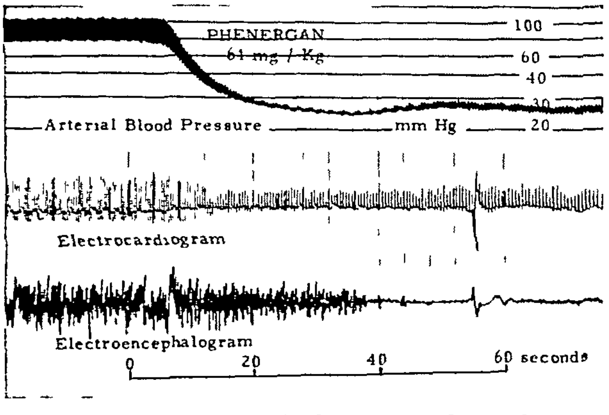

Fig 2—Graph of arterial blood pressure in dog, with electrocardiographic and electroencephalographic tracings, showing that, after the administration of 64 mg of promethazine per kilogram of body weight blood pressure level dropped from 105 to almost 20 mm Hg in a few seconds Dog died in a few minutes

Summary

Promethazine is of value as an adjunct to premedication and anesthesia in several ways It potentiates the action of barbiturates and opiates, it gives immediate sedation when administered intravenously during surgery with spinal, regional, or local analgesia, and it seems to be of appreciable value in the prevention of postoperative nausea and vomiting Promethazine is also of value in the active treatment of postoperative nausea and vomiting Postoperative excitement was quelled in two patients by the intravenous administration of promethazine The drug also potentiates and prolongs the action of the opiates in relieving pain in patients with ineradicable malignancies Prolonged drowsiness, the only untoward clinical effect, may be desirable in some instances, but it may necessitate a prolonged sojourn in the recovery room In a busy clinic, this effect may be a disadvantage The toxicity of this drug was found to be extremely low

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TREATMENT OF ENTEROBIASIS WITH ONE ORAL DOSE OF PROMETHAZINE HYDROCHLORIDE

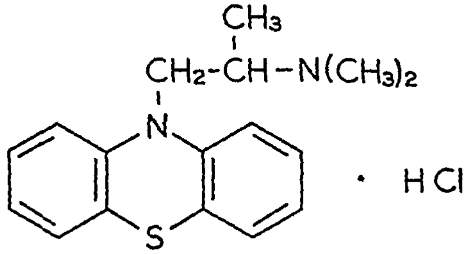
Thomas S. Bumbalo, M.D., Lois J. Plummer, M.D.
and
John R. Warner, M.D., Buffalo

• One hundred seven children infected with Enterobius vermicularis were treated with 125 mg. of promethazine given in a single dose at bedtime. Adhesive cellophane tape smears were made in establishing the diagnosis and following the course of treatment; eggs present on the skin about the anus adhere to the tape and are thus transferred to glass slides for identification. Beginning 10 days after treatment, one cellophane tape smear was taken daily for seven days. Only 5 of the 107 children gave consistently negative results through the seven day period; the percentage of successes was therefore 5.3%. A second series of 24 patients were treated with 125 mg. doses of pyrathiazine. The percentage of successes was 12.5%. That these dosages were not far from the limits of tolerance was shown by the appearance of nausea, disorientation at night, and enuresis in some of the children, although in general the drugs were tolerated well. Since it must be assumed that the incidence of side effects would be increased by any increase in dosage of either of these two drugs, the authors recommend that other, more effective oxyuricides of established value be used instead.

Since our first report[1] on the successful treatment of enterobiasis (infection by the pinworm Enterobius vermicularis) with piperazine, many investigators[2] have reported on the high incidence, methods of diagnosis, and the treatment of this condition. Of all the oxyuricides evaluated to date, only piperazine fulfills Cram's criteria[3] for a satisfactory agent: piperazine is highly effective, nontoxic, easily administered, well tolerated, and relatively inexpensive. However, the simplicity of treatment and the reduced cost of a single-dose regimen have stimulated further research in the treatment of enterobiasis.

In a recent publication, Avery[4] reported a 97% cure rate in 100 patients with enterobiasis treated with a single oral bedtime dose of promethazine (Phenergan) hydrochloride. The excellent results reported by Avery with this "inexpensive, nontoxic, one-dose oral treatment for the eradication of pinworms" prompted this study to ascertain the efficacy of promethazine in the treatment of enterobiasis and to confirm Avery's study.

Promethazine, an antihistamine derived from phenothiazine, is N-(2′-dimethylamino-2′-methyl)ethylphenothiazine hydrochloride. It has the following structural formula:



Phenothiazine,[5] the parent compound of promethazine, has been used in the treatment of enterobiasis in humans for many years. While cure rates as high as 86% have been reported[6] in studies of patients who were treated with phenothiazine given orally, the drug has been proved too toxic for general use. Promethazine, the derivative of phenothiazine, has had extensive trial as an antihistamine, both in this country and abroad for several years, with encouraging results. Certain chemical and clinical differences between phenothiazine ($C_{12}H_9NS$), the parent compound, and promethazine, the derivative substance, may explain the lack of toxicity of promethazine hydrochloride.

Clinical Material and Method

One hundred seven children infected with E. vermicularis were treated with 125 mg. of promethazine, given in a single dose at bedtime. These patients were residents of the Immaculate Heart of Mary Home, an outpatient project of the Edward J. Meyer Memorial Hospital in Buffalo. The infected children, 76 males and 31 females, ranged in age from 2 to 15 years. The diagnosis was established by means of a modification of the Graham adhesive cellophane tape swab technique, which we have described in detail in our earlier publications.[7] Two cellophane tape smears were taken from each patient before bathing for two consecutive mornings. Sixty-six of the 107 infected children had positive smears on both mornings, and 41 children had positive smears on one morning. All the children with positive smears were considered infected with E. vermicularis and were treated. Beginning 10 days after treatment, one cellophane tape smear was taken before bathing, daily, for seven days from each of the infected children to determine the results of the treatment. The well-established criterion of cure, seven consecutive negative smears, was used.

Seventy-seven of the total of 184 pediatric residents of the home had negative diagnostic cellophane tape smears and were assumed to be free of enterobiasis. Fifty-one of the 77 were females and 26 were males. The ages of the group ranged from 4 to 16 years. These 77 children, even though they were considered to be free of enterobiasis, were treated with the same dosage of promethazine as the infected children. By treating the noninfected group of children of this home, we hoped to minimize the possibility of allowing infected children, who at that time may have had negative diagnostic smears, to go untreated and subsequently reinfect

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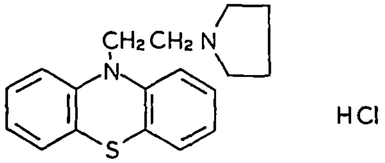
From the Department of Pediatrics, Edward J. Meyer Memorial Hospital, and University of Buffalo School of Medicine.

the children who had been treated The adult personnel of the orphanage were not treated, since none of them presented symptoms that suggested enterobiasis

Without any preliminary preparation or fasting, all 184 children, 107 (58 2%) infected and 77 (41 8%) noninfected, were given 125 mg of promethazine in a single dose at bedtime on the evening of the second diagnostic smear Each of the children swallowed five uncoated and rather bitter tablets of 25 mg each The younger children who were unable to swallow the intact tablets swallowed crushed tablets mixed with grape juice All of the children, regardless of age and weight, were given the same dosage of the medicament The tablets, in all instances, were washed down by 1 oz of grape juice The dosage of promethazine employed was set at 125 mg to coincide exactly with the dosage used by Avery[4] in his study While no deliberate hygienic measures were prescribed, the usual routines of personal and environmental hygiene were adhered to as closely as possible

In addition to treating these 184 children in the Immaculate Heart of Mary Home, we treated 24 patients in the wards and outpatient department of the Edward J Meyer Memorial Hospital with pyrathiazine (Pyrrolazote) hydrochloride, another phenothiazine derivative Pyrathiazine is 10-[2-1(pyrrolidyl)-ethyl] penothiazine hydrochloride and has the following structural formula



The same routines of diagnosis and treatment were used with this group of patients as with the group of patients in the orphanage These patients each received two coated 50-mg tablets and one coated 25-mg tablet, a total of 125 mg of pyrathiazine

Results

Of the 107 infected children treated in the orphanage, only 5 (5 3%) had one daily negative post-treatment cellophane tape smear for seven consecutive days These five were declared cured The table indicates the results of treatment In 89 cases the treatment failed Only one patient had one positive post-treatment smear and six negative post-treatment smears The remainder had two or more positive post-treatment smears If the positive smear in the case of the patient who had only one positive post-treatment smear had occurred on the first day of the post-treatment period, it might reasonably be concluded that he too was cured but that he had a positive reaction one day longer than the rest of the patients Since the positive smear occurred on the fourth day, this patient could not reasonably be included with the cured group The cure rate in this series of infected patients treated with promethazine was only 5 3% The cure rate for the ward and outpatient hospital patients treated with pyrathiazine was 12 5%

Both derivatives of phenothiazine, promethazine hydrochloride and pyrathiazine hydrochloride, were well accepted and tolerated by all of the patients Only five patients of the group treated with promethazin experienced any untoward reaction All five awakene during the night to void and became disoriented The could not find their way back to their beds and ha to be assisted by the attending nuns Two patients o the group treated with pyrathiazine experience nausea, one of these vomited, necessitating readministration of the medicament Two other patients of th group treated with pyrathiazine who were not bed wetters experienced enuresis on the night of medication Two of the authors took 125 mg of promethazin at bedtime at the onset of this study One of us slep soundly all night, while the other spent a restless an sleepless night

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	Positive	Negative		
5	0	7	0	5
41	7	0	41	0
15	6	1	15	0
7	5	2	7	0
10	4	3	10	0
4	3	4	4	0
1	2	5	1	0
1	1	6	1	0
2	4	3	2	0
1	6	1	1	0
2	5	2	2	0
1	4	3	1	0
1	2	5	1	0
2	2	5	2	0
1	2	5	1	0
Total 94*			89 (94 7%)	5 (5 3%)

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* Data on the remaining 13 of the 107 infected patients are not in cluded in this table because 10 were absent for all 7 post treatmen smear and 3 were absent for 1 or more post treatment smear

Sample post-treatment blood cell counts and urin alyses were done on 10 of the patients Eight of these had an eosinophilia ranging from 5 to 13% This finding does not coincide with our earlier observation of a lack of eosinophilia with enterobiasis[8]

Twenty-one of the children who had had negative diagnostic cellophane tape smears had seven con secutive negative cellophane tape smears beginning 10 days after treatment and therefore remained free of infection Fifty-six of the 77 noninfected children had positive smears 10 days after the treatment period, indicating that despite their treatment they became infected during the course of the study

Comment

The percentage of cures in this series of 107 infected children treated with 125 mg of promethazine given in a single oral dose was 5 3 The percentage of cures in a smaller group of 20 infected patients treated with pyrathiazine hydrochloride was 12 5 In a total of 127 patients, therefore, the over-all cure rate was 6 1% These cure rates are even lower than the spontaneous cure rates and indicate that the drugs used in this study were significantly ineffective and permitted the usual reinfections and autoinfections that might be expected in a large group of infected children living in the intimate environment of the average institution for homeless children The incidence of infection with E vermicularis is much higher in children living in institutions that in children in private homes Of the total of 184 children in this home, 57 2% were infected The infection rate for the city of Buffalo is 30%, calculated on the basis of studies we have conducted at the Edward J Meyer Memorial Hospital

While our studies confirm the lack of toxicity of promethazine, as reported by Avery,[4] and pyrathiazine, we are unable to confirm the high cure rate obtained by Avery in his studies It is our opinion that, with the availability of oxyuricides of established value, promethazine hydrochloride and pyrathiazine hydrochloride should not be recommended as efficient oxyuricides

462 Grider St (15) (Dr Bumbalo)

The promethazine hydrochloride used in this study was supplied as Phenergan by Wyeth Laboratories Inc, Philadelphia and the pyrathiazine hydrochloride as Pyrrolazote by the Upjohn Company, Kalamazoo, Mich

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ELECTIVE CARDIAC ARREST WITH POTASSIUM CITRATE DURING OPEN-HEART OPERATIONS

REPORT OF THIRTY-SEVEN CASES

Willem J Kolff, M D, Donald B Effler, M D, Laurence K Groves, M D
and
Patrick P Moraca, M D, Cleveland

• *A complete, temporary arrest of cardiac motion was induced and an almost bloodless operative field was obtained by the use of potassium citrate in 37 patients undergoing open heart surgery The largest group consisted of 18 children with congenital inter ventricular septal defect The heart lung machine, consisting of a pump and an oxygenator, was connected so as to remove blood from the venae cavae, oxygenate it, and return it to the aorta The aorta was occuluded 2 or 3 cm above the heart, and a mixture of 2 ml of 25% potassium citrate solution with 18 ml of blood was injected into the aorta proximal to the point of occlusion The potassium citrate solution was injected until the heart stopped If 20 ml was not enough more was injected It was found that under these conditions the human heart could resume its normal action after periods of arrest as long as 40 minutes The flaccidity of the heart facilitated extensive repairs, but distortions and tensions that were produced when large defects were closed sometimes resulted in tears elsewhere after the spontaneous beat was restored The potassium citrate itself did not seem to introduce any new dangers Of the 13 patients who died, three had transposition of the great vessels and one had a single ventricle Twenty four patients recovered All of the nine patients who had the tetralogy of Fallot were in the group who recovered*

At present, nearly all open-heart operations at the Cleveland Clinic are performed during elective cardiac arrest While the patient's circulation is being maintained with a heart-lung machine, his heart is stopped by potassium citrate injected into the root of the aorta This technique, originated by Melrose,[1] provides an almost bloodless operative field with excellent visibility The heart is completely motionless and flaccid, so that it can be manipulated, folded, and inverted for exact placing of sutures Since the entire coronary circulation is stopped, there need be no fear of kinking or obstructing coronary vessels, with resultant local ischemia In most instances blood loss from the open heart is slight—as, therefore, is the amount of transfused blood needed to replace it

Theoretically, cardiac arrest seemed to have obvious advantages, but only experience could answer the following questions 1 Would the human heart resume its normal action after a period of prolonged arrest due to potassium citrate? 2 Would unforeseen difficulties arise with this new technique? 3 Were new dangers introduced with the use of potassium citrate?

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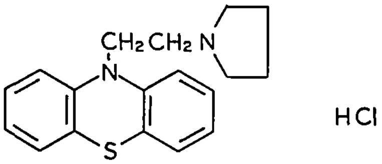

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15	6	1	15	0
7	5	2	7	0
10	4	3	10	0
4	3	4	4	0
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From the Division of Research and the departments of thoracic surgery and anesthesiology, the Cleveland Clinic Foundation, and the Frank E Bunts Educational Institute Dr Moraca is a Fellow in the Department of Anesthesiology, the Cleveland Clinic Foundation

Technique

All heart-lung machines are based on the principle that blood is withdrawn from the venae cavae, is oxygenated extracorporeally in an artificial lung, and is pumped back into the aorta (fig 1 and 2) The patient's own heart is completely bypassed, but the coronary arteries receive blood from the aorta as long as the root of the aorta is not clamped off As the coronary blood reenters the heart via the coronary sinus and the venae cordis minimae (Thebesian veins), the heart is by no means dry Each heart-lung machine comprises a pump and an oxygenator

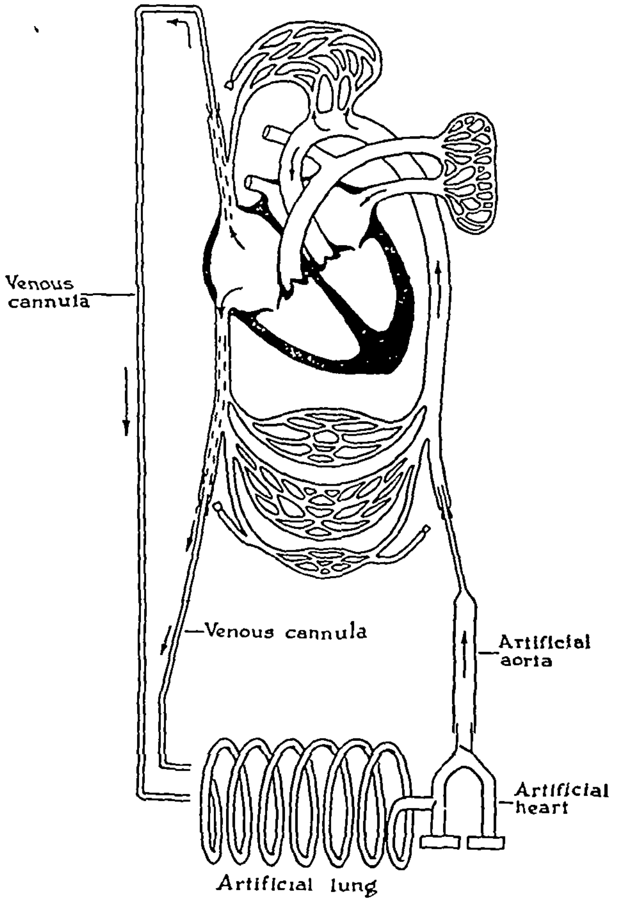

Fig 1 —Diagram of artificial maintenance of circulation Extrathoracic cannulations Blood is sucked out of venae cavae into any kind of oxygenator and is pumped through side-branch back into aorta Flow in aorta is reversed All tissues are perfused with blood coming from aorta

Oxygenators —In the disposable membrane oxygenators (Baxter Laboratories), previously described in detail,[2] oxygenation takes place through polyethylene tubing, (fig 3) The results of use of these oxygenators in patients have been as good as was expected on the basis of 140 experiments on dogs[2] In the present stage of development they require considerable blood for priming, which makes them costly to use on persons weighing more than 20 kg (44 lb) These disposable membrane oxygenators were used for 29 of our 37 patients The weights of those patients ranged from 3 3 to 23 kg (7 3 to 51 lb)

The Bjork oxygenator (fig 4) was used for eight patients weighing up to 50 kg (110 lb) In small patients it does not allow very accurate balance of blood, but for larger patients it requires less blood to prime than does the membrane type The Bjork oxygenator[3] (made for one of us [W J K] by Mr J de Groot in the factory of the N V Philips in Zwolle, The Netherlands) consists of a row of 48 disks, each 13 cm in diameter, on a central shaft, which rotates 60 to 140 rpm in a trough containing sufficient blood to cover the lower portion of the disks Oxygenation takes place when the film of blood on the rotating disks is exposed to an atmosphere of oxygen One per cent carbon dioxide is added to the oxygen in most cases Two Bjork oxygenators (two troughs and two rows of 48 disks each), arranged in parallel, can oxygenate 3,000 ml of blood per minute The following changes are among those recently made in this equipment 1 Inexpensive Gramophone disks (Gray Audiograph disks) have been substituted for the original stainless steel disks Two or three new, ungrooved Audiograph disks are glued together to make one disk of increased rigidity The equipment is sterilized in a solution of benzalkonium (Zephiran) chloride 2 A minute amount of Dow Corning Antifoam A is applied to the trough in which the disks rotate, so that any bubbles that form will be broken up and will not generate foam

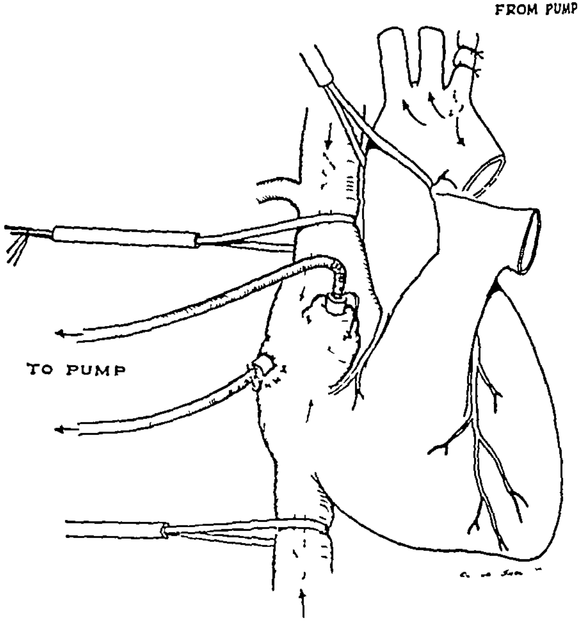

Fig 2 —Scheme of intrathoracic cannulation for extracorporeal maintenance of circulation Systemic venous return is diverted to oxygenator by intracaval catheters Blood returning from oxygenator enters aortic arch by way of a subclavian artery, perfusing coronary arterial system as well as brain and other organs

Pumps —Although other investigators may vary the rates of their arterial pumps, we prefer to set the arterial pump at a constant predetermined rate As the perfusion with oxygenated blood is the ultimate goal of the heart-lung machine, inadequacy of venous return should not necessarily be reflected in a decreased arterial output An inadequate venous return almost nvariably is caused by blood loss in the operating ield and is an indication that blood must be transfused, transfusion is performed at the venous end of the machine

With the membrane oxygenator, a three-pump system (Sigmamotor) (fig 5) makes it possible to check accurately the balance of input and output[4] With the Bjork oxygenator, which is placed 66 cm below the level of the operating table, gravity controls the flow of blood into the apparatus and one large pump (Sigmamotor) returns the blood (fig 6) Hemolysis is avoided by the use of polyvinyl chloride tubing instead of rubber tubing for the pumps

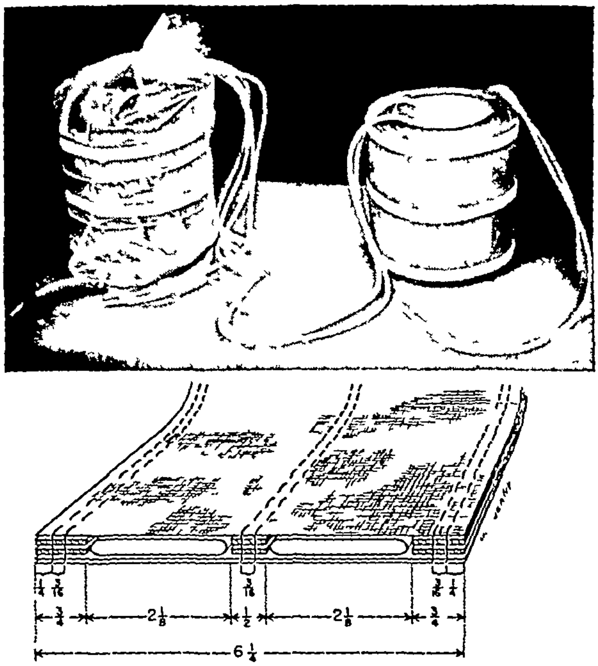

Fig 3—*Top*, artificial lung (right) and artificial lung in plastic bag with tube for oxygen inlet at bottom *Bottom*, cross section of membrane arrangement of artificial lung three layers of Fiberglas window screen, two polyethylene tubes, and three pairs of spacers (to permit distention of tubes with blood) [reproduced with permission from the *Journal of Thoracic Surgery* [**32** 622 (Nov) 1956])

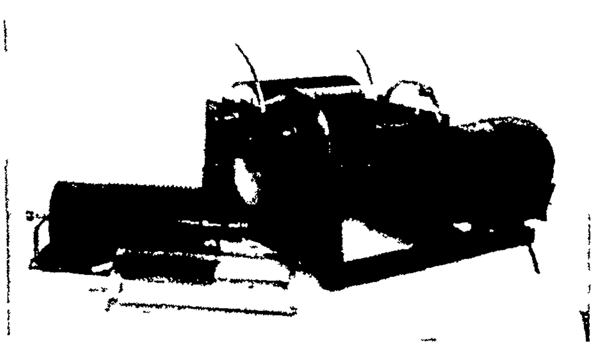

Fig 4—Bjork oxygenator Gramophone (Audiograph) disks rotate in trough containing blood

Flow Rate Used—In the first 10 patients of this series, a low flow rate of 35 ml per kilogram per minute was used, based on the pioneering work of Lillehei[5] However, on many occasions the child's level of anesthesia, as determined by our clinical observations and the electroencephalogram, seemed to deepen during the run, indicating a certain amount of cerebral hypoxia Although the electroencephalographic findings rapidly returned to normal and we have not observed any lasting ill effects, we believe that even such temporary hypoxia should be avoided Since we have used higher flow rates, the children tend to wake up during the run, and often their movements have to be inhibited by administering succinylcholine chloride through the machine Patients now routinely wake up during closure of the wound, they did not always do so with the lower flow rates For children who weigh less than 10 kg (22 lb), we now pump 75 ml of blood per kilogram per minute, and for adults we pump about 50 ml However, the flow rate has to be less if the subclavian artery cannot receive a cannula large enough to carry this flow

Potassium Citrate Arrest—The technique of bringing about cardiac arrest by potassium citrate perfusion is exactly that proposed by Melrose[1] and described by us in detail[6] While the machine is pumping oxygenated blood at the set flow rate, the venae cavae are temporarily tied off (fig 7) Next the aorta is occluded with a noncrushing clamp 2 or 3 cm above the heart A mixture of 2 ml of a 25% solution of potassium citrate (containing 0 5 Gm or 4 5 mEq) and 18 ml of aspirated blood is injected into the root of the aorta, proximal to the clamp (fig 7) The potassium citrate solution is injected until the heart stops If 20 ml is not enough more is injected

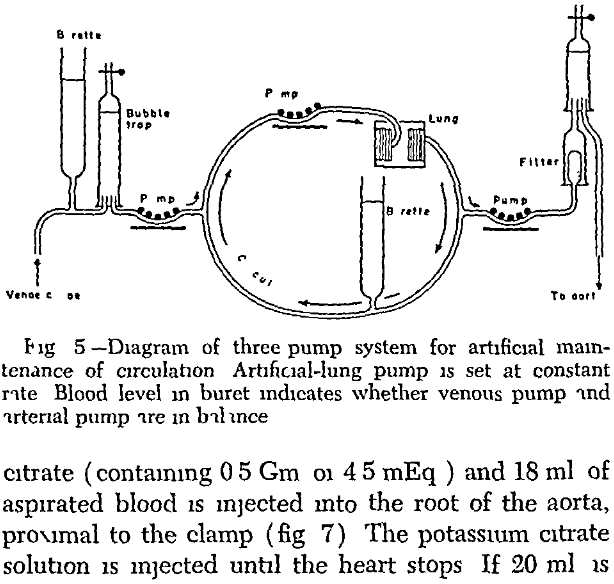

Fig 5—Diagram of three pump system for artificial maintenance of circulation Artificial-lung pump is set at constant rate Blood level in buret indicates whether venous pump and arterial pump are in balance

During arrest the heart has a low oxygen requirement, consequently, it is assumed that occlusion of the aorta and interruption of coronary flow have minimal deleterious effect, and the dry heart may be cut, repaired, and closed without excessive haste After completion of the intracardiac operation the clamp on the aorta is released Blood from the heart-lung machine reaches the coronary vessels, flushes out the potassium citrate, and provides oxygen Soon the first heartbeat may be expected Usually, the surgeon does not complete closure of the cardiotomy until the first coronary sinus blood, which has a high potassium level, has overflowed from the heart

Blood Replacement—All blood sucked from the operative field is collected after passage over Dow Corning Antifoam A and is measured in a graduated cylinder The blood that was lost is replaced, volume for volume, with heparinized donor blood At the beginning and at the end of the operation the patient is weighed on a platform scale The difference in weight is a factor in determining the blood balance and whether blood should be replaced scantily or generously during the postoperative period

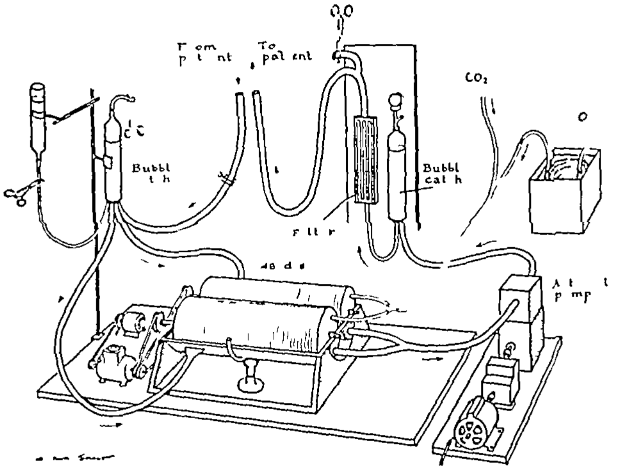

Fig 6—Diagram of Bjork oxygenator Venous inflow into oxygenator is by gravity (siphon) regulated with screw clamp Oxygenated blood is pumped out of troughs by large Sigmamotor pump passing air-cushion–bubble catcher and filter before it returns to aorta

Arterial Blood Pressure—The arterial outflow line in both types of heart-lung machine is provided with a filter and a bubble catcher, on which is mounted an aneroid manometer that indicates the blood pressure of the patient when the pump is not in operation As mentioned previously the arterial pump operates at a predetermined rate that provides adequate perfusion, the blood pressure during the run is not measured

Clinical Results

Of the 37 patients who underwent elective cardiac arrest by potassium citrate during open-heart operation, 13 died and 24 recovered Ten deaths may be considered surgical failures, and, of these, four were nonpreventable with our present experience and technique Three of these patients had transpositions of the great vessels and the fourth had a single ventricle The other six surgical deaths presented types of problems that, in the future, with more experience, we should be able to manage

Three deaths were from pulmonary complications Two of these patients were known to have severe pulmonary hypertension and died 10 and 36 hours, respectively, after the operation The third, a 7-month-old infant, notwithstanding tracheotomy, died from pulmonary dysfunction one week after the operation Table 1 gives a summary of results A most promising finding is that all of the nine patients having tetralogy of Fallot lived

Observations—There was some correlation between the dose of potassium citrate and the weight of the patient (table 2), however, for hearts of the same size, the individual doses of potassium citrate varied widely The findings in 2 of the 37 patients are not included in tables 2, 3, and 4, because they were difficult to classify A summary of experiences in those two patients follows

Case 1—A baby weighing 3,300 Gm (7 3 lb) had two interventricular septal defects, a wide pulmonary artery, and a small, underdeveloped aorta It took 25 ml of the potassium citrate–blood mixture to stop the heart, and not until 14 minutes and 40 seconds after removal of the clamp did the first heartbeat occur Heart block persisted, and mean arterial pressure could not be restored to a level higher than 30 mm Hg After 68 minutes the child was taken off the machine The child moved and showed no signs of cerebral damage but died that same afternoon At postmortem examination it was found that only one of the two defects in the ventricle had been closed and that a potassium citrate hematoma had developed because the aorta had been traversed during the injection of the potassium citrate–blood mixture It is possible, but cannot be proved, that this caused the heart block, if so, the use of the heart lung machine should have been continued until all the potassium citrate was diffused and an effective heartbeat had been restored

Case 2—The second child was a boy weighing 17 kg (37 4 lb) with complete transposition of the great vessels The heart was stopped for 40 minutes The venous return was rechanneled within the auricle, as described by Albert,[7] and an attempt was made to close an interventricular septal defect During the procedure there was excessive bleeding into both sides of the heart After removal of the aortic clamp, ventricular fibrillation occurred As seen on the oscilloscope the ventricular fibrillation gradually changed into slow ventricular waves and later into regular beats Fifty-eight minutes after removal of the aortic clamp when the machine was stopped the heartbeat was effective and the mean arterial pressure was 80 mm Hg

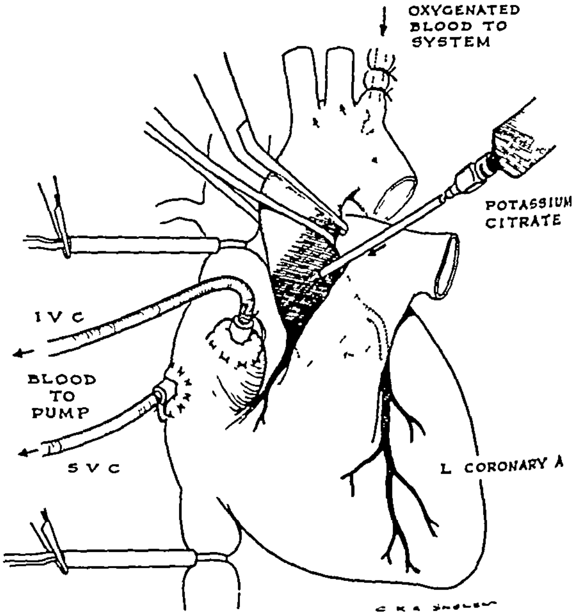

Fig 7—Technique of induced cardiac arrest Venae cavae are occluded by umbilical tapes while heart is bypassed with extracorporeal pump-oxygenator Aorta is occluded midway between aortic valve and innominate artery Potassium citrate-blood mixture is injected into occluded aortic root and perfuses coronary bed until heart stops To restart heartbeat, clamp is removed from aorta blood from heart-lung machine perfuses coronary circulation and flushes out potassium citrate, whereupon heart starts beating

The child died that afternoon At autopsy, the venous rechanneling was found to be perfect a large patent ductus was found, and the outflow tract of the systemic ventricle was narrowed This narrowing had resulted from an attempt to close the septal defect in the absence of the anterior part of the septum

Duration of Cardiac Arrest—The average duration of cardiac arrest in the remaining 35 cases was 17 (7 to 40) minutes The duration of arrest is calculated from the moment the heart stopped until the first ventricular beat This time lapse includes intracardiac operative time plus the interval between the removal of the clamp from the aorta and the appearance of the first ventricular beat

Recovery of Heart—The first heartbeat occurred an average of 64 seconds (10 seconds to 5 minutes) after removal of the clamp In a 35-year-old woman (50 kg) with severe aortic stenosis, it took the unusually long time of five minutes This delay may have been due to extensive arteriosclerosis and atherosclerosis in the subclavian artery, which limited the size of the arterial cannula that could be used, as well as atherosclerosis in the coronary arteries, as was later found However, 25 minutes after removal of the clamp the heart action was effective and the blood pressure was 120/80 mm Hg

TABLE 1—*Results of Elective Cardiac Arrest in Thirty-seven Patients*

Diagnosis	Patients No	Deaths No	Causes of Death: Surgical: Preventable	Causes of Death: Surgical: Nonpreventable	Causes of Death: Pulmonary Complications
Interventricular septal defect					
Under 2 yr	6	3	3		
Over 2 yr	12	3	1		2
Tetralogy of Fallot	9	0			
Transposition of great vessels	3	3		3	
Ostium primum	1	0			
Interauricular septal defect (ostium primum) and mitral stenosis	1	1			1
Interauricular septal defect and single ventricle	1	1		1	
Interauricular septal defect and pulmonary stenosis	1	0			
Interauricular septal defect and mitral insufficiency	1	1	1		
Pulmonary stenosis and tricuspid insufficiency	1	0			
Aortic stenosis	1	1	1		
Total	37	13	6	4	3

In the 35 patients, an effective heart action was restored within an average of 14 (5 to 35) minutes This period was measured from the time of removal of the aortic clamp to the time of cessation of extracorporeal circulation, when the patient's circulation was reestablished During this time the surgeon usually completed the suturing of the ventriculotomy, observed hemostasis of the cardiac incision, partly closed the pericardium, and removed blood from the chest so that a total blood balance could be made The time indicated here for the return of an effective heart action is usually longer than the actual time required for the effective heartbeat to return

Perfusion Rate and Recovery of Heart Action—The findings were studied for possible correlation between the perfusion rate of the heart-lung machine and the time required for resumption of the heartbeat and effective heart action Higher flow rates do not seem to bring about faster recovery of the heart action (table 3) However, a higher flow rate may be advantageous when air is trapped in the coronary arteries Air was seen in the coronary arteries in four instances, but it might have been present more often In two children with air visible in the coronary arteries the perfusion rate was 35 ml per kilogram per minute, and it took 19 and 26 minutes, respectively, for restoration of effective heart action In two other children the flow rate was higher, 50 ml per kilogram per minute In one of these, effective heart action was restored within five minutes, the air could be seen traveling through the coronary vessels at a high velocity In the other, restoration of effective heart action was delayed for 35 minutes by ventricular fibrillation

TABLE 2—*Relation of Weight of Patient and Amount of Potassium Citrate–Blood Solution Used to Arrest Heart*

Weight Range Kg	Patients No *	Amount of Potassium Citrate-Blood Solution† Used: Av Ml	Amount of Potassium Citrate-Blood Solution† Used: Range Ml
3 10	8	8 7	6-13
10 20	15	17 5	7-40
20 30	5	22 0	18-29
30 40	3	29 3	18-40
40-60	4	47 5	20 80
	35	20 0	6-80

Two patients not included

†Mixture of 2 ml of 2 % potassium citrate solution and 18 ml of blood was used to arrest heart

Of the four patients with air visible in the coronary arteries, two recovered and two died The deaths could not be attributed to temporary obstruction of the coronary circulation by air

Arrhythmias—Table 4 gives data on the arrhythmias that occurred during the open-heart operations

Ventricular Fibrillation Ventricular fibrillation occurred in 7 of our 37 patients (table 4) It converted spontaneously to normal rhythm in two patients, and in four patients normal rhythm was restored by a second perfusion with potassium citrate In the seventh patient the second arrest with potassium citrate was incomplete according to the electrocardiogram, and ventricular fibrillation continued after the clamp on the aorta had been released Later, normal rhythm was restored, either spontaneously or perhaps as the result of an injection of procaine hydrochloride

TABLE 3—*Relation of Perfusion Rate to Duration of Cardiac Arrest and of Prerecovery Periods*

Perfusion Rate Ml Kg / Min	Patients No *	Duration of Arrest Min †: Av	Duration of Arrest Min †: Range	Interval Until Resumption of Ventricular Heartbeat Sec ‡: Av	Interval Until Resumption of Ventricular Heartbeat Sec ‡: Range	Interval Until Restoration of Effective Heart Action Min §: Av	Interval Until Restoration of Effective Heart Action Min §: Range
35	10	12	8 5-21	62 5	25-100	14	9 26 5
35-80	25	19	7 -40	65 5	10 sec 5 min	14	5-35

Two patients not included

†Period from moment heart stopped until first ventricular beat

‡Period from removal of aortic clamp until first ventricular beat

§Period from removal of aortic clamp until machine was disconnected

Ventricular Tachycardia Ventricular tachycardia occurred in 2 of the 37 patients (table 4) One patient had ventricular tachycardia 14 days before the open-heart operation, while undergoing an attempt at blind surgical repair of aortic stenosis, and required a procaine hydrochloride injection and cardiac massage to restore normal rhythm Then, during the open-heart operation, she developed a two-minute episode of ventricular tachycardia prior to connection to the heart-lung machine and also a four-minute episode some time after the potassium citrate arrest The second patient had a 14-minute ventricular tachycardia

Heart Block Heart block was observed in 11 of the 37 patients In two patients it has been permanent postoperatively In these two patients isoproterenol (Isuprel) hydrochloride increased the ventricular rate so that an effective heart action could be restored, later these patients maintained a satisfactory ventricular rate by themselves Nine patients had transient blocks lasting from two minutes to four hours Four of the nine died (three surgical failures and one pulmonary complication) and five recovered

Changes in Temperature and Arrhythmias Since no vigorous efforts were made to heat the blood in our machines, a moderate drop in temperature occurred in many patients, occasionally to 32 C (89 6 F) In one instance it seemed as though low temperature predisposed to arrhythmia Analysis of data in our other cases did not confirm this

Blood Loss During Open Cardiotomy—In open cardiotomy without cardiac arrest the blood loss from the heart cavities may be great, but with a clamp on the aorta and elective cardiac arrest the blood loss is small In 33 cases the average amount of blood aspirated from the open heart was 41 (17 to 74) ml per kilogram of body weight, or 703 (145 to 2,300) ml total per patient

In some patients, especially in those with tetralogy of Fallot, a large collateral flow from the systemic bronchial arteries to the lungs accounted for a considerable amount of blood entering the heart In the four other patients blood loss was out of proportion One child having pulmonary stenosis lost 112 ml per kilogram, one having transposition of the great vessels lost 158 ml per kilogram, and one having two interventricular septal defects lost 154 ml per kilogram A child weighing 17 kg who had transposition of the great vessels lost almost 5 liters of blood (282 ml per kilogram) from an unsuspected patent ductus (In experimental investigations One of us and Dubbelman[34] found lungs engorged with blood when the heart lung machine was used for perfusion in the presence of an open ductus arteriosus) Because large blood losses occasionally may occur, it is wise to have a sterile sucker and a defoaming chamber in readiness to collect the blood for reuse

Comment

We believe that the Melrose[1] technique of elective cardiac arrest with potassium citrate deserves recommendation, because in all of our 36 cases in which it was correctly applied it was possible to restore effective heart action and adequate circulation

It is important that the understandable impatience and anxiety of the surgeon when the heart action is not immediately restored be curbed Whether the delay is due to air (visible or not) in the coronary arteries or to other reasons, just being patient seems to be the best remedy For example, attempts at massage have had no beneficial effects except perhaps as a relief to the surgeon in his profound desire to make the heart behave In two of our patients, attempts were made to defibrillate the heart with electric shocks, these attempts failed A second arrest with potassium citrate has proved a more effective procedure When the heart-lung machine is stopped, the patient's arterial blood pressure can be observed on the manometer on the arterial outflow tract The heart action is carefully watched, and, if the heartbeat slows or the blood pressure falls, it is concluded that the heart is unable yet to take over the burden of the circulation To heart-lung machine is restarted temporarily to assist the circulation (a so called second run)

With severe heart failure, peripheral cannulation may offer the advantages of an early start of the machine even before the chest is opened and of a second run hours after the closure of the chest In one child, who almost died some hours after the operation, we were able to restore an effective heart rhythm and blood pressure with a second run on the heart lung machine This, however, did not cure the fundamental trouble, an obstruction in the pulmonary outflow tract

TABLE 4 —*Data on Twenty Patients Having Arrhythmia During Open-Heart Operation**

Type of Arrhythmia	Patients No	Duration	Method of Conversion	Patient's Temperature C	Air Visible in Coronary Arteries	Result
Ventricular fibrillation (7 patients)	1	55 sec	Spontaneous	32 5	—	Recovery
	1	2 min 50 sec	Spontaneous	35	—	Death transposition
	1	4 min	K rearrest	35 5	—	Recovery
	1	2 min	K+ rearrest	[illegible]	+	Death 36 hr postoperatively pulmonary failure
	1	5 min	K+ rearrest	35 5	—	Death 20 days postoperatively surgical failure
	1	8 min	K+ rearrest	36	+	Recovery
	1	19 min	K+ rearrest (incomplete)	35 5	—	Death transposition
Ventricular tachycardia (2 patients)	1	4 min	Procaine hydrochloride	35	—	Death surgical failure
	1	14 min	Procaine hydrochloride	35	—	Recovery
Heart block (11 patients)						
Transient	9	2 min to 4 hr		32 37	—	4 deaths 3 surgical failures 1 pulmonary failure 5 recoveries
Permanent	2	>7 days		34 5-35 5	—	2 survivals

* Effective heart action was restored in all cases even if death occurred later

Did the technique of cardiac arrest create unforeseen difficulties or new dangers? 1 The needle through which the potassium citrate is injected may go all the way through the aorta so that the potassium citrate is not delivered into the lumen but forms a hematoma behind the aorta A stop or sleeve on the injection needle can help to prevent this 2 A defective valve or septum perfectly repaired in the quiescent heart may create stresses causing tears elsewhere in the cardiac structures when the heartbeat is restored Tears resulting in significant defects occurred in one heart This heart had a very large ostium secundum defect and mitral insufficiency due to a markedly dilated valve ring The lateral commissure of the mitral valve was partially closed, with the work done through the septal defect, by approximation of the leaflets with a continuous suture At autopsy there was a large rent in the posterior leaflet immediately behind the suture line The resultant gross insufficiency then apparently subjected the atrial septum to sufficient strain to cause a second rent of the same type immediately behind the line of closure of the septal defect It is like the repairing of a sail on a boat by "stitching" a tear When the wind comes up and stretches the sail, a tear appears elsewhere A suitable patch will not provoke this tension 3 In the flaccid, pliable heart, ventricular defects may be closed by suturing, whereas in the beating heart it would be apparent that a prosthesis of Ivalon or some other material is necessary to avoid distortion Distortion of the aortic outflow tract occurred in the child with a single ventricle

The fear that suturing in the arrested heart would predispose to heart block has not been substantiated, as atrioventricular block has persisted in only 2 of the 37 cases The incidence may be low because sutures can be placed much more carefully and accurately in the quiescent heart

Summary

Elective cardiac arrest with potassium citrate was performed in 37 patients during open-heart operations while each patient s circulation was maintained with a heart-lung machine Kolff disposable membrane oxygenators or Bjork rotating-disk oxygenators were used A mixture of potassium citrate, 2 ml of a 25% solution for each 18 ml of blood, was injected into the clamped-off root of the aorta (Melrose technique)

Complete ventricular asystole was achieved in all cases In 35 cases suitable for analysis, the average duration of cardiac arrest was 17 (7 to 40) minutes After surgical repair within the heart, the clamp was removed from the aorta and the heartbeat was resumed in an average of 64 seconds (10 seconds to 5 minutes) Effective heart action with adequate circulation was restored in an average of 14 (5 to 35) minutes Ventricular fibrillation occurred in seven patients, but normal rhythm always returned, in four patients normal rhythm was restored after a second arrest with potassium citrate Transient heart block occurred in nine patients, permanent heart block in two

The average loss of blood during operation, including blood aspirated from the open heart, was 41 ml per kilogram of body weight (an average of 700 ml per patient) Values in excess of this amount should arouse suspicion, either inflow occlusion is incomplete or there is a large collateral circulation, such as through an open ductus

In one patient, some of the potassium was infiltrated posteriorly to the base of the aorta, and an effective heart action could not be restored In all other patients the circulation was restored adequately Thirteen patients died Among those, three had transpositions of the great vessels and one had a single ventricle, six died from surgical failures that in time may become avoidable, and three died from pulmonary complications Twenty-four patients recovered All nine patients having tetralogy of Fallot survived, and the abnormalities apparently have been anatomically corrected

The advantages of this technique from the surgical point of view are (1) a motionless field, (2) a relatively bloodless field, (3) less operative blood loss, and (4) ease of approximating without prosthesis margins or even large defects in the flaccid heart The possible disadvantages are as follows 1 The field may be so dry as to increase the likelihood of coronary air embolism 2 Interference with conduction may not be recognized in the still heart (this has not been a significant problem to date) 3 Myocardial damage may result from hypoxia (The still heart apparently utilizes extremely small amounts of oxygen Cardiac arrest for one hour has recently been successfully applied in a 54-year-old patient) 4 In the flaccid heart, excessive distortion may be caused and may be unrecognized when large defects are closed 5 Tension that is not apparent in the flaccid heart may result in tears after restoration of the heartbeat

Addendum

Human hearts have now been stopped 85 times with potassium citrate for open-heart surgery Certain changes in technique have been instituted, some problems have been solved, and some questions have been answered The venous blood pressure and the arterial blood pressure now are continually measured during the run The nine patients with tetralogy of Fallot who were operated on without mortality have not all recovered to a normal state, as was originally hoped

If sufficient time is allowed for good oxygenation of the myocardium, electric shocks have proved to be adequate to stop ventricular fibrillation if it occurred after arrest with potassium citrate It is now known, beyond a doubt, that higher perfusion rates (1) increase the speed with which the heartbeat recovers after potassium arrest and (2) reduce the incidence of temporary arrhythmias In the last 21 consecutive patients who underwent elective cardiac arrest with potassium, ventricular fibrillation occurred three times this was due to surgical failure twice and it reverted spontaneously once Ventricular tachycardia occurred twice and was reverted to a normal rhythm by electric shock Transient atrioventricular block occurred only once, and permanent heart block occurred once

2050 E 93rd St (Dr Kolff)

This study was done in collaboration with Drs Harold F Knight Jr and Shigeto Aoyama, Cleveland Dr Aoyama is a Fellow in the Division of Research, the Cleveland Clinic Foundation

Mr Janis Eglajs and Miss Rose Littun provided technical assistance in this study

The experimental work leading to this study was aided by a grant to Dr Kolff from the Cleveland Area Heart Society

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RAPID AND ACCURATE OPHTHALMOSCOPIC DETERMINA OF CIRCULATORY ARREST

Jack Kevorkian, M D, Pontiac, Mich

• *Interruption or segmentation of
columns and disappearance of the retin
tern, possibly the most nearly infallibl
of death, was first described almost 10
Movement of venous segments has subse
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Direct cardiac massage or electrical defi
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need for determining the absence of carc
and the prospects of uncomplicated res
an urgent procedure, now that cardiac
no longer invariably fatal Absence of the
intraocular phenomena on ophthalmoscop
signify a vital heartbeat, and thoracotomy
ophthalmoscopically contraindicated*

Cardiac standstill and ventricular fibrillation are no longer invariably fatal Lives are being saved by means of direct cardiac massage or electrical defibrillation [1] Such radical intervention carries with it grave responsibilities, for one is always confronted with two terrifying questions—has the heart really stopped (or, is it fibrillating), and will I act in time? Cardiac standstill cannot be readily ascertained without direct visualiza- n of the heart The stethoscope cannot be relied up- as a guide, and even the electrocardiograph, if at d, may show normal or abnormal, but confusing ectrical activity [2] Fibrillation can be diagnosed and effective therapy instituted only if the electrocardiograph is conveniently available [3] Time, then, becomes the major factor It is obvious that when there is the least possible delay in starting treatment, there is the best chance of resuscitation without residual, permanent heart or brain damage [4] On the other hand, erroneous thoracotomy while the heart is still beating could kill the patient [1c] Thus, there is an urgent need for a rapid, easy, and accurate method for determining the absence of cardiac output, be it a result of standstill or fibrillation

Such a convenient diagnostic aid has long been at our disposal In 1863 Bouchut,[5] who used the newly invented ophthalmoscope, described the most nearly infallible sign of death interruption or segmentation of retinal venous blood columns The arterial pattern of the retina usually disappears concomitantly and rapidly [6] Less appreciable and rapid are retinal color changes [7] As circulation slows down immediately prior to death, blood in the retinal vessels becomes granular in appearance [6] due to ophthalmoscopic magnification of small clumps of blood cells [8] These granular columns break into definite segments a few seco
heart action stops (fig 1), and the segments
continue to move smoothly in the direction of
several minutes after the absolute cessation of
tion [6]

Usher,[8] in 1896, was the first to suggest that
rapid vascular changes could serve as a sign of
citability His contention was strongly suppor
1936 by Salsbury and Melvin,[8] who experimented
dogs and correlated cardiac arrest and ventri
fibrillation with retinal changes by direct obser
of both In 1940, Weinberger and co-workers,[9] stu
ing the effects of arrested circulation on the cen
nervous system of cats, used the retinal changes
gauging the status of cerebral blood flow The rapidi
of disappearance of retinal arteries and of segment
tion of venous columns has also been correlated wi
insufficient electrocardiographic activity in humans
Indirect evidence for the reliability of these signs in
evaluating cardiac function is indeed abundant and
convincing

From the Krankenhaus r d Isar (Munich) and Medizinische Akademie (Dusseldorf) Dr Kevorkian is now in the Department of Pathology University of Michigan Medical School Ann Arbor, Mich

Modern thoracic surgery offers unlimited opportunities to demonstrate conclusively this reliability by direct, simultaneous observation of the heart and the retina of human patients With this in mind, ophthalmoscopy was performed at the operating table in order to see retinal changes produced by various natural and artificially created cardiovascular disturbances and to establish the dependability of those changes

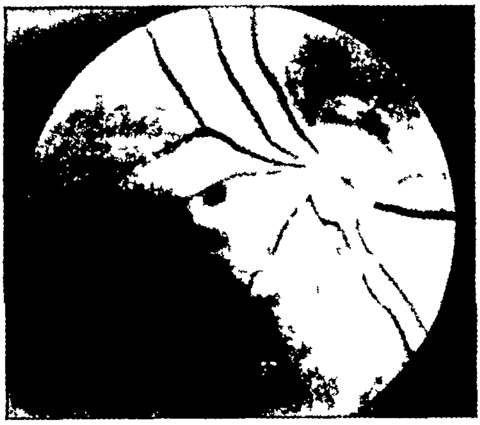

Fig 1 —Photograph of fundus of 59 year-old woman approximately 15 minutes after death and two to three minutes after movement of segments stopped showing segmentation in smaller veins near disk and in vein running transversely to left Disk is chalky white

Report of Cases

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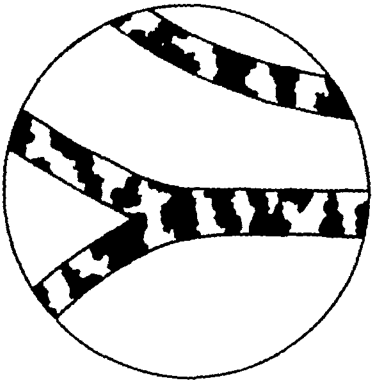

Fig 2 —Schematic drawing of segmentation observed in patient in case 1 with movement of segments toward disk at velocity of 0 5 disk diameter per second Segmentation appeared to result from intravascular coagulation

Case 2 —A 53-year-old man suddenly collapsed during bronchography There was no heart movement on fluoroscopy It was at least 20 minutes, and probably longer before the chest could be opened for massage Although the case was deemed hopeless the heart responded amazingly after a few rubs and squeezes through an intact pericardium Manual pumping was continued a while longer, and examination of the eye by a surgical resident while pumping was in progress or temporarily interrupted revealed uniformly constricted vessels but no segmentation A spontaneous heartbeat returned and the patient lived in a comatose state for another two days The retina appeared normal on the first postoperative day Unfortunately it was not examined after death

Case 3 —A 15 year-old girl with an interatrial septal defect had a thoracotomy while under hypothermia (rectal temperature 26 5 C [79 7 F]) The pulmonary artery and aorta were clamped for 3 minutes and 45 seconds The retina was examined hastily and superficially in this case and the only definite finding was the absence of venous segmentation

Case 4 —A 32-year-old woman with an interatrial septal defect had a thoracotomy while under hypothermia (rectal temperature 28 C [82 F]) The pulmonary artery and aorta were completely clamped for two minutes With the green light of the ophthalmoscope the retina appeared pale, and the arteries were indistinct due to fine stippling resembling very small closely packed clumps of blood cells suspended in serum (fig 3) Veins were slightly constricted, with absolutely no segmentation When circulation was restored retinal color quickly improved veins dilated, and arterial stippling disappeared

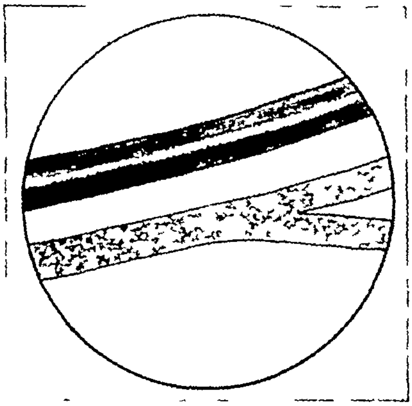

Fig 3 —Schematic representation of retinal vessels during circulatory stagnation in patient in case 4 showing veins darker, with reflex stripe Arterial blood showed motionless stippling (exaggerated in drawing) and no reflex stripe

Case 5 —A 6 year old girl with multiple congenital heart defects that proved to be inoperable had a thoracotomy while under hypothermia (rectal temperature 29 C [82 4 F]) The circulation remained intact, and nothing noteworthy was noted on retinoscopy The patient s body was gradually rewarmed Fever ensued four hours postoperatively and at this temperature (39 C [102 F]), the retina was normal Death occurred eight hours later The fundus of the eye was once again examined approximately five hours after death and the classic signs of spotty venous segments on a uniformly pink retina were seen Arteries had disappeared

Case 6 —A 20-year-old woman with an interatrial septal defect had a thoracotomy while under hypothermia (rectal temperature 28 5 C [83 F]) The ventricles began to fibrillate before the circulation was interrupted Manual pumping and massage were started immediately, and ophthalmoscopy 20 seconds later revealed thin arteries and veins, without stippling

This study was done in collaboration with Drs Harold F Knight Jr and Shigeto Aoyama, Cleveland Dr Aoyama is a Fellow in the Division of Research, the Cleveland Clinic Foundation

Mr Janis Eglajs and Miss Rose Litturi provided technical assistance in this study

The experimental work leading to this study was aided by a grant to Dr Kolff from the Cleveland Area Heart Society

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RAPID AND ACCURATE OPHTHALMOSCOPIC DETERMINATION OF CIRCULATORY ARREST

Jack Kevorkian, M D, Pontiac, Mich

• *Interruption or segmentation of retinal venous columns and disappearance of the retinal arterial pattern, possibly the most nearly infallible clinical sign of death, was first described almost 100 years ago Movement of venous segments has subsequently been advanced as an indication of reversibility of death Direct cardiac massage or electrical defibrillation for cardiac standstill and ventricular fibrillation make the need for determining the absence of cardiac output and the prospects of uncomplicated resuscitability an urgent procedure, now that cardiac standstill is no longer invariably fatal Absence of the described intraocular phenomena on ophthalmoscopy would signify a vital heartbeat, and thoracotomy would be ophthalmoscopically contraindicated*

Cardiac standstill and ventricular fibrillation are no longer invariably fatal Lives are being saved by means of direct cardiac massage or electrical defibrillation [1] Such radical intervention carries with it grave responsibilities, for one is always confronted with two terrifying questions—has the heart really stopped (or, is it fibrillating), and will I act in time? Cardiac standstill cannot be readily ascertained without direct visualization of the heart The stethoscope cannot be relied upon as a guide, and even the electrocardiograph, if at hand, may show normal or abnormal, but confusing electrical activity [2] Fibrillation can be diagnosed and effective therapy instituted only if the electrocardiograph is conveniently available [3] Time, then, becomes the major factor It is obvious that when there is the least possible delay in starting treatment there is the best chance of resuscitation without residual, permanent heart or brain damage [4] On the other hand, erroneous thoracotomy while the heart is still beating could kill the patient [1c] Thus, there is an urgent need for a rapid, easy, and accurate method for determining the absence of cardiac output, be it a result of standstill or fibrillation

Such a convenient diagnostic aid has long been at our disposal In 1863 Bouchut,[5] who used the newly invented ophthalmoscope, described the most nearly infallible sign of death interruption or segmentation of retinal venous blood columns The arterial pattern of the retina usually disappears concomitantly and rapidly [6] Less appreciable and rapid are retinal color changes [7] As circulation slows down immediately prior to death, blood in the retinal vessels becomes granular in appearance [6] due to ophthalmoscopic magnification of small clumps of blood cells [8] These granular columns break into definite segments a few seconds after heart action stops (fig 1), and the segments of blood continue to move smoothly in the direction of flow for several minutes after the absolute cessation of circulation [6]

Usher,[8] in 1896, was the first to suggest that these rapid vascular changes could serve as a sign of resuscitability His contention was strongly supported in 1936 by Salsbury and Melvin,[6] who experimented with dogs and correlated cardiac arrest and ventricular fibrillation with retinal changes by direct observation of both In 1940, Weinberger and co-workers,[9] studying the effects of arrested circulation on the central nervous system of cats, used the retinal changes in gauging the status of cerebral blood flow The rapidity of disappearance of retinal arteries and of segmentation of venous columns has also been correlated with insufficient electrocardiographic activity in humans [10] Indirect evidence for the reliability of these signs in evaluating cardiac function is indeed abundant and convincing

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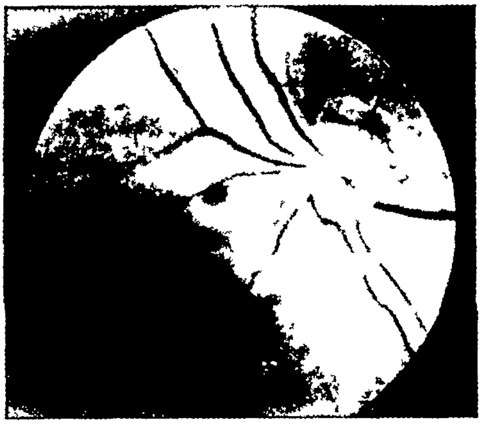
From the Krankenhaus r d Isar (Munich) and Medizinische Akademie (Dusseldorf) Dr Kevorkian is now in the Department of Pathology University of Michigan Medical School Ann Arbor Mich

Modern thoracic surgery offers unlimited opportunities to demonstrate conclusively this reliability by direct, simultaneous observation of the heart and the retina of human patients. With this in mind, ophthalmoscopy was performed at the operating table in order to see retinal changes produced by various natural and artificially created cardiovascular disturbances and to establish the dependability of those changes.



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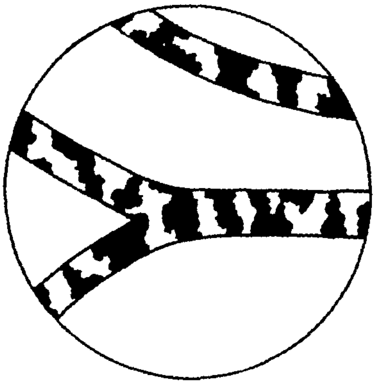

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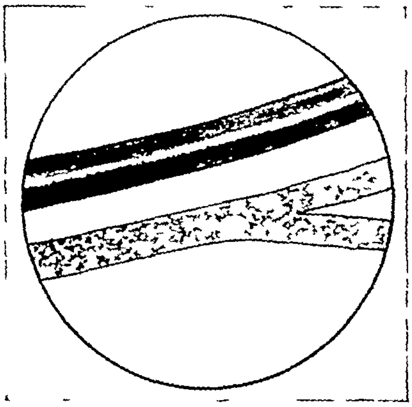

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Case 5.—A 6-year-old girl with multiple congenital heart defects that proved to be inoperable had a thoracotomy while under hypothermia (rectal temperature 29 C [82.4 F]). The circulation remained intact and nothing noteworthy was noted on retinoscopy. The patient's body was gradually rewarmed. Fever ensued four hours postoperatively and at this temperature (39 C [102 F]), the retina was normal. Death occurred eight hours later. The fundus of the eye was once again examined approximately five hours after death, and the classic signs of spotty venous segments on a uniformly pink retina were seen. Arteries had disappeared.

Case 6.—A 20-year-old woman with an interatrial septal defect had a thoracotomy while under hypothermia (rectal temperature 28.5 C [83 F]). The ventricles began to fibrillate before the circulation was interrupted. Manual pumping and massage were started immediately, and ophthalmoscopy 20 seconds later revealed thin arteries and veins without stippling or segmentation Pumping was discontinued, and the heart was electrically shocked After two shocks, normal sinus rhythm was restored The time intervals between massage and the first shock and between the shocks could have been no longer than two seconds, yet, during that time, arteries disappeared rapidly and completely apparently in the direction of flow, although disappearance was too rapid to be certain of direction, and veins became constricted and irregular in outline, without definite segmentation in the retinal areas observable during such a brief period These changes disappeared very briefly with the first electrical shock, recurred instantaneously in the second or two thereafter, and permanently disappeared when normal heartbeat was restored The great arteries were later clamped off for 3 minutes and 35 seconds Results of ophthalmoscopic examination during this period of circulatory stagnation were identical to those in case 4

Case 7 —A 35-year-old woman with an interatrial septal defect had a thoracotomy while under hypothermia (rectal temperature 28 C) Great arteries were clamped for three minutes Retinal findings were the same as those in case 4, with the addition of venous stippling at arterial crossings There was no segmentation Vascular stippling disappeared in 10 seconds after clamps were removed

Case 8 —A 27-year-old man with an interatrial septal defect had a thoracotomy while under hypothermia (rectal temperature 28 C) The aorta and pulmonary artery were clamped for 5 minutes and 18 seconds, during which time examination of the retina was comfortably performed As in the other cases, the veins were clearer than the arteries Light to moderate digital pressure on the globe caused complete blanching of all vessels on the disk and even beyond its edges as well as at vessel crossings (fig 4) No pulsation waves traversed the blanched areas Release of pressure resulted in very gradual refilling of vessels by a retrograde redistribution of stagnant blood at the disk, and by redistribution in both directions at blanched crossings Segmentation was not seen

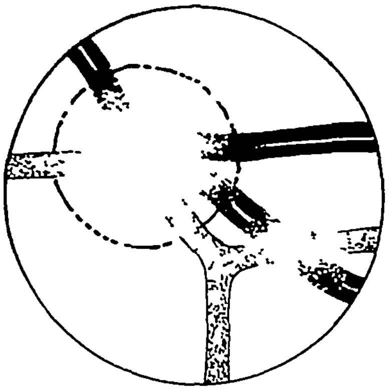

Fig 4 —*Drawing of blanching produced by light to moderate pressure on the globe in patient in case 8 Fine granularity of blood made movement of columns easy to follow release of pressure allowed displaced blood to gradually redistribute itself (in five to six seconds) and restore vascular continuity Blanching could not be elicited when aortic clamp was removed*

Comment

Since the pupils dilate at death and during surgical anesthesia, one rarely has difficulty in attempting retinoscopy The determination of death or cardiac standstill with the ophthalmoscope may be impossible, however, if the patient has severe, bilateral ocular diseases that make the retina inaccessible to light [10] Venous segmentation occurs in both eyes simultaneously and usually in most tributaries, thus, unilateral observation of a small part of the retina may suffice even if pupils are constricted due to the antemortem administration of morphine Although moistening of the cornea with a few drops of water or saline solution permits the clearest perception of details for long periods of time,[10] this is not necessary to insure enough sharpness for diagnostic certainty If these clarifying solutions are immediately available, they may be quickly applied Otherwise no external solution, clarifying or mydriatic, should be considered essential enough for ophthalmoscopy to be delayed

The first case reported above proves by direct observation that segmentation of retinal veins occurs rapidly after cardiac standstill, for it was seen approximately two minutes after signs of life had disappeared a second time and shortly before standstill was visually confirmed (fig 2) Because the sign had been present a few minutes before rhythmic manual pressure on the chest had restored definite manifestations of life, it may be presumed that the heart had stopped beating and had again started without direct physical contact or massage Recurrence of segmentation of venous blood is apparently possible only if circulation is maintained physiologically after restoration, i e , maintained by normal heart action (case 1) Manual pumping is adequate to sustain life,[1c] but segmentation does not recur when protracted pumping is temporarily interrupted (case 1 and 2) This could conceivably be due to an unnatural, irreversible congestion of optic vessels by an unregulated volume flow Whether or not segmentation ever recurs in such cases remains to be investigated

It was surprising that segmentation was never observed in patients under hypothermia (cases 3 8), with complete circulatory stagnation as shown by the motionless granularity of arterial blood (fig 3) Any of three factors could account for this excessively congested vessels in a closed vascular system, reduced blood and body temperature, or prolonged operative trauma

Before the heart was opened for septal repair in cases 3-8, clamps were first placed only on the venae cavae to prevent entrance of blood into the right side of the heart so that the heart contents could, at the same time, be emptied via the great arteries Congestion in the venous and peripheral arterial system resulted This was finally transformed into a closed system by clamping the aorta and the main pulmonary artery The venous congestion could have not only precluded segmentation but prevented complete emptying and disappearance of arteries

The effect of reduced temperature is easier to evaluate Although the absence of segmentation in retinal vessels of corpses at temperature levels of from 6 10 C (42 to 50 F) has been reported,[11] experiments with rabbits have shown that static, sludge-like segments do appear at death Also rapid and unmistakable disappearance of retinal arteries in case 6 and irregularity of venous columns, possibly premonitory of inevitable segmentation had the fibrillating ventricles remained untouched several seconds longer, strongly indicate that the usual sequence of events occurs even at low temperatures Under normal conditions segmentation becomes manifest after 2 to 3 seconds of complete stagnation of blood flow,[9] and, with hypothermia, this latent period perhaps may be lengthened either by subtle alterations in physicochemical relationships between blood and its gases and other constituents or, possibly, because of various degrees of hypothermic thrombocytopenia[12] Results in case 6 also tend to eliminate surgical trauma as an inhibitory factor

Thus, accessibility of stagnant blood to the heart, retrograde[11] or in the direction of flow is apparently essential for the evolution of segments The basic cause of segmentation is not known[10] According to one view it represents columns of blood separated by bubbles of gas (pneumatosis),[5] while another attributes it to clumping of blood cells in the serum[14] The latter view seemed to be true in case 1 (fig 2), but observations on moribund patients indicate that both mechanisms may play a role[10] The segments themselves may have a "beaded" appearance[11] or may be extremely long and irregular in length In either instance all retinal veins occasionally may not be uniformly involved[14]

Movement of the segments is a phenomenon of immense value After death, venous blood segments continue to move smoothly in the direction of flow over the edge of the optic disk According to several reports, duration of flow varies from 2 minutes[8] to 20 minutes,[10] with a speed estimated at from 1 to 2 disk-diameters per second Movement was noted in case 1 but at a slower velocity Segmental motion has been proposed as a sign of resuscitability,[6] and the duration of the phenomenon seems to coincide well with the duration of circulatory arrest that will not produce permanent tissue damage The ability of human hearts and brains to withstand the effects of arrest is apparently an individual matter, for, although the safe time limit has been set at 3 minutes, 25 seconds (from cat studies)[9] and at 4 minutes (from studies on human beings),[2a] there have been cases of uncomplicated resuscitation by cardiac massage as long as 10-20 minutes after cardiac standstill[15] Segmental motion, therefore, may serve as a sign of not only resuscitability but resuscitability without disturbance of functions

Ophthalmoscopy offers rapid, objective answers to a few highly important questions that have recently arisen[1b] If an apparently healthy person suddenly and inexplicably collapses, becomes cyanotic, and has no detectable pulse or blood pressure or audible heart sounds, what is one to do? Based on the knowledge gained from this direct visual study on humans, from electrocardiographic and photographic evidence in humans[10] and from direct observations on dogs[6] and cats,[7] it is reasonable to conclude that, with the use of the ophthalmoscope as a guide, one may proceed in most instances without too much hesitation *Moving* retinal venous segments mean that effective cardiac output has stopped in the previous few minutes at most and that the patient's life, in all likelihood, can be completely restored in the clinical sense, thoracotomy would be unconditionally indicated If, however, resting segments are seen, the decision for further action becomes purely subjective, for, although attempts at manual or electrical cardiac resuscitation in such a case—attempts that would be almost certainly unsuccessful[8]—should probably be carried out even though the so-called four-minute limit has been considerably exceeded,[15] it would be impossible to predict with any degree of certainty the desirability of the end-results among the few patients whose lives might be saved Even if segmentation were not seen, circulatory stagnation could be satisfactorily detected by the absence of arteries and by the vascular blanching and refilling caused by digital pressure (case 8) Finally, absence of all of the above intraocular phenomena on ophthalmoscopy would signify a vital heartbeat, and thoracotomy would be contraindicated

That these signs are infallible as a new diagnostic role remains to be established The only tool that is needed is an ophthalmoscope The changes to be noted are objective and striking Every dying patient offers an opportunity for learning to recognize and evaluate them The problem now concerns many physicians[2a] The anesthesiologist must be able quickly to detect circulatory standstill when the heart is not directly visible, the surgeon and internist may encounter cases of standstill on the wards, and the general practitioner can be faced with such a decision at any time Through an accumulation of independent observations and experiences, it will be possible to verify the efficacy of this sign, which can reduce anxiety and indecision, save time, and, above all, save lives

Summary

Lack of cardiac output produces characteristic retinal changes that have long been recognized as an accurate sign of death The most striking of the changes are disappearance of retinal arteries and segmentation of venous blood, both of which occur a few seconds after circulation stops The venous segments continue to move for several minutes thereafter, during which time cardiac resuscitation would most likely be successful, and they finally become stationary, while remaining segmented These vascular phenomena have been reliably correlated with insufficient cardiac activity by electrocardiographic and photographic studies on humans and by direct visualization of the heart and eyes in animals Similar observations during operations performed with the patient under hypothermia and after accidental cardiac standstill (as reported in this study) support the contention that the ophthalmoscope can serve as an accurate aid in the rapid determination of circulatory arrest and as a dependable guide in the institution of therapy

Figure 1 is reproduced with permission from the *American Journal of Pathology*[10]

Drs G Maurer E Kugel, A Harlacher, C Lehmann E Derra, and M Kindler assisted in this study

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CLINICAL NOTES

EVALUATION OF TESTS FOR OCCULT BLOOD IN THE FECES

SIGNIFICANCE OF GUAIAC AND ORTHOTOLIDINE TESTS AFTER INGESTION OF IRON

Thomas E Morgan, M D, San Francisco
and
Robert J Roantree, M D, Stanford, Calif

The presence of occult blood in the feces is of great clinical importance both as an early finding with undetected gastrointestinal neoplasm and as an indication of an important complication of already known gastrointestinal disease Patients in whom it is most necessary to detect small amounts of blood in the feces are often those with hypochromic anemia, and they are often taking therapeutic amounts of iron when tested It is widely believed that the ingestion of iron will cause a positive test with guaiac (Bell,[1] Burger,[2] Hoerr and associates [3]) Textbooks of clinical pathology (Ham,[4] Gradwohl [5]) are noncommittal on the question, and the published articles are few and conflicting It would be of clinical worth then if the reliability of the guaiac test done on the stool of a patient taking a normal diet with and without iron ingestion could be determined

The guaiac test was selected for this experiment because it has been shown that the benzidine test is too sensitive an indicator and leads to many false-positive results (Bramkamp,[6] Hoerr and associates,[3] Leiboff,[7] Peranio and Bruger [8]) The commercial orthotolidine reagent method was also tested, because it is a simple method widely used but not extensively evaluated in the medical literature Some experimental work suggested that this test might be unreliable (Hoerr and associates [3])

Materials and Methods

The experiment was divided into three parts (1) a control period, (2) a period of iron ingestion during which the subject produced black stools, followed by a second period of 10 days during which the stools returned to normal color, and, finally, (3) a period of testing after the ingestion of 8 to 10 ml of whole blood

The experimental subjects were 30 young, healthy medical students and house-staff members of both sexes without known or suspected bleeding gastrointestinal lesions Although no dietary restrictions were imposed, all subjects were asked to refrain from or to report alcoholic excess or meals during which they ingested blood-rich or lightly cooked meat All stool specimens were collected in standard cardboard containers, and testing was carried out in equipment specially cleaned to remove all traces of blood

Three consecutive stool specimens were collected and tested by the methods described below After this control period each subject was given 0 9 Gm of ferrous sulfate three times daily for three days, and specimens of the first three black stools thus produced were collected and tested

A period of 10 days without medication was then allowed to elapse, during which time all stools returned to normal color This was followed by the administration of 8 to 10 ml of whole blood by mouth The two subsequent stools were collected and tested as before

Two methods of performing the guaiac test (filter paper and test tube) were compared The simple filter paper method, as recommended by Barnett,[9] Ham,[4] and Hoerr and associates [3] as an office screening procedure, was performed as follows A saturated alcoholic suspension of gum guaiac was prepared with powdered gum guaiac in 95% alcohol (Such a preparation has been shown by Hoerr [3] to be stable for periods up to one month and need not be made fresh daily) With a wooden applicator stick, a small amount of feces

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From the Department of Medicine, Stanford University School of Medicine was spread upon a filter-paper circle To this was added, in succession, one drop each of concentrated acetic acid, gum guaiac reagent, and 3% hydrogen peroxide

The test-tube guaiac method, as recommended by Peranio and Bruger,[8] was performed as follows The same reagents described above for the filter-paper method were used A suspension of feces was prepared by mixing thoroughly approximately 1 Gm of feces in 5 ml of distilled water To this was added 1 ml of concentrated acetic acid followed by 1 ml of ether The mixture was shaken thoroughly and the ether layer allowed to form One milliliter each of guaiac solution and 3% hydrogen peroxide was then added Color changes, if present, were observed at the interface between the water and ether layers

The orthotolidine test was performed exactly as described in the manufacturer's instructions accompanying the reagent The reagent is available commercially as Hematest and contains orthotolidine, strontium peroxide, tartaric acid, and calcium acetate A drop of fecal suspension or a thin layer of feces was placed on filter paper on a clean surface The tablet was placed in the center of the specimen, and two drops of water were allowed to flow over the tablet, down its sides, and onto the filter paper

The results of both guaiac and orthotolidine tests were graded according to the same scale, depending on the time of appearance of a deep blue or a green color after adding peroxide or water The reactions were as follows negative, no blue or green color, trace, blue or green color appearing after 90 seconds but before 2 minutes, 1+, blue or green color appearing after 60 seconds but before 90 seconds, 2+, blue or green color appearing after 30 seconds but before 60 seconds, and 3+, blue or green color appearing within 30 seconds Daily tests were performed by each of these methods on all equipment used and on diluted blood

Results

Two observers independently tested every stool specimen, thus, each stool was tested twice by each of three methods All results are recorded in tables 1 and 2

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Guaiac test (filter paper method)	120	84	23	16	110	90	12	10	6	11	48	89
Orthotolidine test (Hematest)	131	92	12	8	109	89	13	11	33	61	21	39

During the control period, it became evident that 5 of the 30 subjects were giving positive results more consistently, although no dietary or disease history was elicited to account for these reactions Since it could not be determined whether these subjects were actually bleeding, the results of tests carried out upon their stools are tabulated separately in table 2, and in table 1 there are recorded the results with the remaining 25 subjects

Discrepancies between the observers in grading the degree of the positive tests were encountered in 11 8% of the guaiac test-tube tests, in 12 6% of the filter-paper tests, and in 15 1% of the orthotolidine tests Such discrepancies were often of small extent, that is, they represented differences of one grade in the positivity of the tests, and in only 6 6% of the test-tube results and in 2 5% of the filter-paper tests were the differences of larger magnitude In the orthotolidine test, however, two observers were at major variance in 9 7% of the tests

TABLE 2 —*Results of Stool Testing in Five Apparently Normal Subjects with High Percentage of Positive Tests*

	Control (30 Tests)				After Iron (30 Tests)			
	Negative		Positive		Negative		Positive	
	No	%	No	%	No	%	No	%
Guaiac test (test tube method)	13	43	17	57	25	83	5	17
Guaiac test (filter paper method	12	40	18	60	25	83	5	17
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Further examination of table 1 clearly shows that positive reactions were no more frequent after iron therapy than during the control period Most of the false-positive reactions during this period were 1+ reactions and were scattered at random throughout the tests In table 2 it is of interest to note that the incidence of positive tests with guaiac during iron therapy actually declined in those five subjects who gave more positive tests in the control period Statistical analysis of the data from both groups of subjects confirms this observation, and the decline in the numbers of positive tests has been shown to border on statistical significance

After the administration of whole blood (hemoglobin content, 14 Gm per 100 cc) by mouth, a marked increase both in the degree and in the frequency of positive reactions was noted Eight milliliters of blood administered orally has previously been shown to produce at least one positive stool by most tests for fecal blood (Bramkamp[6]) Since two stools were collected after the administration of a single dose of blood, it might be expected that not all the stools would be positive Therefore, only the single stool specimens from each subject showing the most positive reactions are tabulated Blood was detected in 83% of the stools by the test-tube guaiac test, in 89% by the filter-paper guaiac test, and in only 39% by the orthotolidine test As a further check, a single ferrous sulfate tablet was ground up and tested with each of the three methods described All three methods gave negative results

Comment

The results derived from this experiment demonstrate that the stool tests with guaiac and orthotolidine do not become positive more often after the ingestion of iron The simple filter-paper test was more sensitive and as reliable a guide as the test-tube method Control testing demonstrated a moderately high number of false-positive reactions with each method, although these were rarely greater than 1+ There was very little correlation between false-positive tests by one method and false-positive tests by one of the other

3 Footnotes 1*b* and *c*

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CLINICAL NOTES

EVALUATION OF TESTS FOR OCCULT BLOOD IN THE FECES

SIGNIFICANCE OF GUAIAC AND ORTHOTOLIDINE TESTS AFTER INGESTION OF IRON

Thomas E Morgan, M D , San Francisco
and
Robert J Roantree, M D , Stanford, Calif

The presence of occult blood in the feces is of great clinical importance both as an early finding with undetected gastrointestinal neoplasm and as an indication of an important complication of already known gastrointestinal disease Patients in whom it is most necessary to detect small amounts of blood in the feces are often those with hypochromic anemia, and they are often taking therapeutic amounts of iron when tested It is widely believed that the ingestion of iron will cause a positive test with guaiac (Bell,[1] Burger,[2] Hoerr and associates [3]) Textbooks of clinical pathology (Ham,[4] Gradwohl [5]) are noncommittal on the question, and the published articles are few and conflicting It would be of clinical worth then if the reliability of the guaiac test done on the stool of a patient taking a normal diet with and without iron ingestion could be determined

The guaiac test was selected for this experiment because it has been shown that the benzidine test is too sensitive an indicator and leads to many false-positive results (Bramkamp,[6] Hoerr and associates,[3] Leiboff,[7] Peranio and Bruger [8]) The commercial orthotolidine reagent method was also tested, because it is a simple method widely used but not extensively evaluated in the medical literature Some experimental work suggested that this test might be unreliable (Hoerr and associates [3])

Materials and Methods

The experiment was divided into three parts (1) a control period, (2) a period of iron ingestion during which the subject produced black stools, followed by a second period of 10 days during which the stools returned to normal color, and, finally, (3) a period of testing after the ingestion of 8 to 10 ml of whole blood

The experimental subjects were 30 young, healthy medical students and house-staff members of both sexes without known or suspected bleeding gastrointestinal lesions Although no dietary restrictions were imposed, all subjects were asked to refrain from or to report alcoholic excess or meals during which they ingested blood-rich or lightly cooked meat All stool specimens were collected in standard cardboard containers, and testing was carried out in equipment specially cleaned to remove all traces of blood

Three consecutive stool specimens were collected and tested by the methods described below After this control period each subject was given 0 9 Gm of ferrous sulfate three times daily for three days, and specimens of the first three black stools thus produced were collected and tested

A period of 10 days without medication was then allowed to elapse, during which time all stools returned to normal color This was followed by the administration of 8 to 10 ml of whole blood by mouth The two subsequent stools were collected and tested as before

Two methods of performing the guaiac test (filter paper and test tube) were compared The simple filter paper method, as recommended by Barnett,[9] Ham,[4] and Hoerr and associates [3] as an office screening procedure, was performed as follows A saturated alcoholic suspension of gum guaiac was prepared with powdered gum guaiac in 95% alcohol (Such a preparation has been shown by Hoerr [3] to be stable for periods up to one month and need not be made fresh daily) With a wooden applicator stick, a small amount of feces

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From the Department of Medicine, Stanford University School of Medicine

was spread upon a filter-paper circle To this was added, in succession, one drop each of concentrated acetic acid, gum guaiac reagent, and 3% hydrogen peroxide

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After the ingestion of 8 ml of whole blood, stools from the great majority of subjects gave strongly positive reactions (usually 2+ or 3+) as compared with the weakly positive tests in the false-positive reactions In spite of the fact that orthotolidine is a more sensitive reagent than guaiac, a satisfactory sensitivity for blood in the stools with the tablet form of this reagent could not be demonstrated in this experiment

In spite of the reliance placed by many clinicians upon the testing of the feces for occult blood as an adjunctive or even a required part of the physical examination, there is little published scientific fact to justify the faith with which these tests are performed Published experimental evidence concerning the effect of ingested iron on these tests has been both scanty and conflicting Many authors (Bell,[1] Hoerr and associates,[3] Burger [2]) have recommended the elimination of iron medication during fecal testing, since they found positive reactions for occult blood in a small number of subjects receiving iron Other authors (Ogilvie,[11] Schwartz and Vil,[12] Harvey [13]) have seen no positive reactions during iron therapy In a recent experiment on this subject Forshaw and Mason [10] concluded that there is no increase in the number of positive tests after iron ingestion However, reexamination of their data shows a definite but small rise in the number of positive tests during iron therapy, although their data, as published, do not enable a statistical evaluation The present experimental results and the conclusions expressed here are based upon a more extensive experimental investigation than those previously reported and are in agreement with those reports which showed no increase in the number of positive tests for occult blood after iron ingestion

Certain other facts have already been established which aid in the understanding and optimal use of tests for fecal occult blood by various reagents The variety of reagents available includes those which are suitable for screening purposes (e g, gum guaiac), as contrasted with more sensitive reagents for estimating the amount of blood present (e g, benzidine, orthotolidine, and the Gregersen reagent composed of benzidine and barium peroxide) Gum guaiac is a complex natural resin containing several chromogenic molecules Benzidine and orthotolidine are chromogens related to guaiac, but all these reagents are oxidized by oxygen obtained from a peroxide and carried catalytically to the reagent by the heme molecule or its derivatives (Ham,[4] Hill and Kelley [14]) The resulting blue or green color formed is an unstable one which on standing reverts by reduction to the more stable brown pigment form Each reagent is also unstable to some extent, thus, the entire process must be considered a complex one, with variables of stability of the reagent, amount of heme present, rate of production of color, and rate of loss of color all interacting at once (Leiboff [7])

It is generally agreed that the degree of positivity of these tests depends upon the amount of blood present (Forshaw and Mason [10]) and that the benzidine and orthotolidine reagents are more sensitive (Bell [1]) than the guaiac test Hence, the guaiac method is to be preferred as a screening test (with definite limitations) The presence of animal blood in the diet, of course, results in positive reactions, this source of error must always be kept in mind clinically It has been suggested that other porphyrins, such as chlorophyll, may also give positive reactions, but such has not proved to be true (Johnson and Oliver [15])

Although a discussion of the methods for the proof of the etiology and the localization of gastrointestinal bleeding is beyond the scope of this report, it seems obvious that in doubtful or weakly positive tests the dietary history should be reviewed, meat should be excluded from the diet if necessary, and several different methods of testing for occult blood should be employed before concluding that actual hemorrhage has taken place

Summary

In tests for occult blood in the feces of 30 young adults taking a normal diet before and during iron ingestion and after the ingestion of whole blood all stool specimens were tested by means of the guaiac test on filter paper and on aqueous fecal suspension and by means of the orthotolidine reagent (Hematest) After iron ingestion the percentage of positive reactions failed to increase In fact, iron ingestion was followed by fewer positive reactions with guaiac The decline approached statistical significance and was particularly striking in a few subjects in whom the incidence of guaiac positivity was inexplicably high prior to iron ingestion After the subjects ingested 8 to 10 ml of whole blood, the presence of occult blood was demonstrated in 86% of the stools by the guaiac tests but in only 39% by the orthotolidine test As to the significance of positive reactions for fecal occult blood, trace reactions are regarded as of little significance, equivocal 1+ reactions require further investigation, and more strongly positive reactions almost always indicate the presence of blood in the feces

Bacteriology Building Stanford Calif (Dr Roantree)

Dr L Moses carried out statistical analysis of the data in this report

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ELECTROENCEPHALOGRAPHIC EVIDENCE OF CORTICAL "DEATH" FOLLOWED BY FULL RECOVERY

PROTECTIVE ACTION OF HYPOTHERMIA

Robert L Tentler, M D , Max Sadove, M D , Dorothy R Becka
and
Robert C Taylor, Hines, Ill

A new application in the operating room has been found recently for electroencephalography Patterns that have been of assistance to anesthesiologists have been established at various levels of barbiturate and general anesthesia[1] The electroencephalograph has been used to control the rate of administration of the anesthetic according to the changes in potentials registered by the instrument[2] Considerable animal experimentation has been done in the last few years with electroencephalographic recordings during various levels of anesthesia and simulated catastrophes during anesthesia, e g , cardiac arrest and ventricular fibrillation, and under conditions of hypothermia[3] From this material it should be possible to arrive at some electroencephalographic criteria that will permit a moment-to-moment estimate of the level of anesthesia and the patient's cortical activity

Hypothermia, as a new adjunct to surgery, may present some alterations in these criteria, changing the prognosis in any individual case The following is one in which continuous electroencephalographic and electrocardiographic readings reveal some of these known criteria, some of which seem to need further study and evaluation

Report of a Case

A 24-year old man sustained a gunshot wound on April 11, 1954, with fracture of the second and third thoracic vertebrae An emergency laminectomy revealed severe spinal cord trauma, with liquefaction of the cord On Aug 16, 1954, he entered the Veterans Administration Hospital, Hines, Ill , where he was found to have a myelopathy at T-1, with complete destruction of function He had spastic paraplegia and loss of bladder and bowel control Apparently at the time of injury the bullet damaged the aorta at the origin of the left common carotid, producing an aneurysm at that site This was evidenced on routine chest x-ray as a mass in the mediastinum It enlarged to three times its original size during the subsequent 19 months It was believed that the aneurysm was enlarging and that a rupture of this aneurysm was probable On physical examination, it was found that the left carotid artery and radial artery were not pulsating

On Feb 21, 1956, the patient was operated on while in a hypothermic state Preoperative medication consisted of 35 mg of chlorpromazine hydrochloride, 50 mg of promethazine (Phenargan) hydrochloride, 50 mg of meperidine (Demerol) hydrochloride, and 0 4 mg of scopalamine hydrobromide The electroencephalograph was started during the induction of anesthesia (6 15 a m) and was continued during the entire operation and until the patient regained consciousness (4 55 p m), a total of 10 hours and 40 minutes A monopolar tracing was made from both frontal, precentral, and central areas, using single or interconnected leads to the ear lobes as a reference A control electroencephalogram was taken on Feb 14, a week before surgery, (see figure, *A*) Anesthesia was induced with thiopental (Pentothal) sodium, and the figure *B* represents the electroencephalogram during induction The patient s trachea was then intubated, and anesthesia was maintained by the administration of nitrous oxide and ether After the electroencephalogram had stabilized, it showed activity such as appears in the figure, *C*, which is that usual in the third plane of ether–nitrous oxide–oxygen anesthesia

The left side of the chest was opened through a long, standard thoracotomy incision from the edge of the sternum to midscapula posteriorly The pericardium was initially opened superior to the left atrium, and, by careful dissection, the proximal arch of the aorta was freed of adjacent structures Further careful dissection permitted isolation and taping of the innominate artery, the left common carotid artery, and the left subclavian artery at the place where each of the vessels came off the aortic arch It was noted that the common carotid artery was of poor quality and had lost its normal elasticity It was necessary to dissect the vagus nerve and the phrenic nerve superiorly in order to free them of the aneurysmal wall While this dissection was being carried out and the tape was being applied about the left common carotid artery, the artery disintegrated and severe hemorrhage, proximally and distally, ensued The figure, *D* and *E*, shows the electroencephalogram and electrocardiogram during this initial and subsequent hemorrhages It was apparent that this vessel was of extremely poor quality A continuous running suture was employed to close the fragmented end of the vessel, but shortly thereafter the vessel gave away again with a second severe hemorrhage A coarctation clamp was placed across the aorta distal to the origin of the innominate artery but proximal to the left common carotid artery (see figure, *H*) The rent in the arch was then closed firmly with a continuous suture After release of the controlling clamps, which were in place about four minutes, the distal end of the vessel was closed with several suture ligatures Attention was then turned to the aneurysm The roof of the aneurysm was incised, and the large blood clot that it contained was

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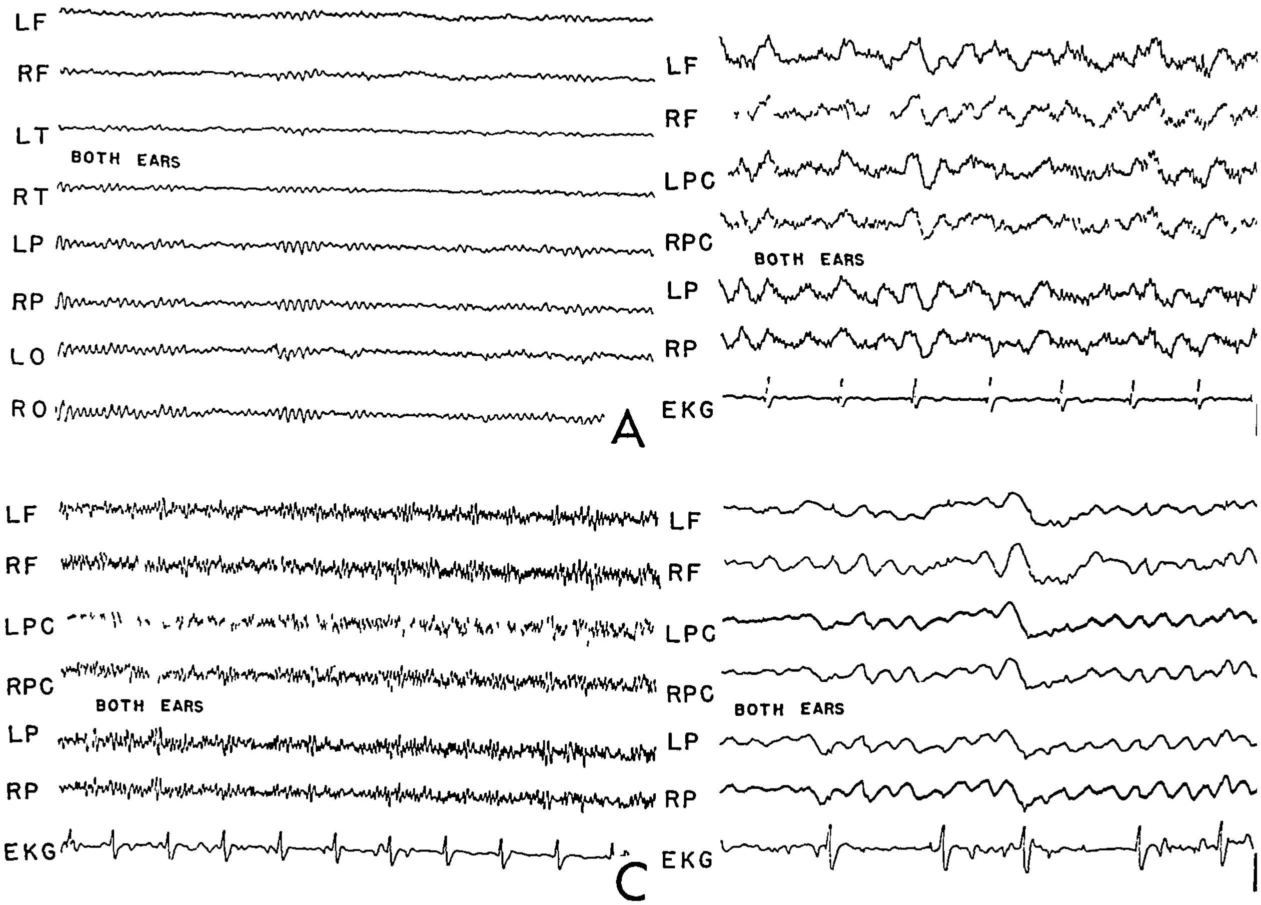
From the Veterans Administration Hospital quickly removed This produced a third severe hemorrhage, during which the patient was in a shock-like state for 19½ minutes By the employment of constant suction to keep the field clear the medial wall of the aneurysm, with its contained feeding vessels, was obliterated by suture ligatures This produced an obliterative endoaneurysmorrhaphy The entire operative field was then inspected for bleeding, and the remaining walls of the sac were excised

Eleven pints (5,205 cc) of blood was given during the operative procedure The entire operative procedure was carried out with use of the hypothermic anesthetic technique The patient's temperature was 82 F (27 C) as measured by an electrical thermopile in the esophagus during the time of the vascular surgery When the patient was emerging from anesthesia, it was noted that, at a temperature of 88 F (31 C), the patient began having twitchings of the pectoral musculature, lasting about 20 seconds and culminating in turning of the head to the left When the temperature reached 90 F (32 C) these episodes became more frequent and terminated in tonic-clonic motion of the shoulders (see figure, *F*) At a temperature of 94 F (39 C), these seizures stopped, and the patient responded to command and was awake

Prior to surgery a battery of psychological tests had been given This was repeated postoperatively, and the patient manifested no significant decrement or improvement in intellectual functioning as a result of the operative procedure

Because the left common carotid artery (and probably the left internal carotid artery) had been ligated, an ophthalmological examination was made to see whether there was any impairment of the blood supply to the retina of the left eye No ocular pathology was found

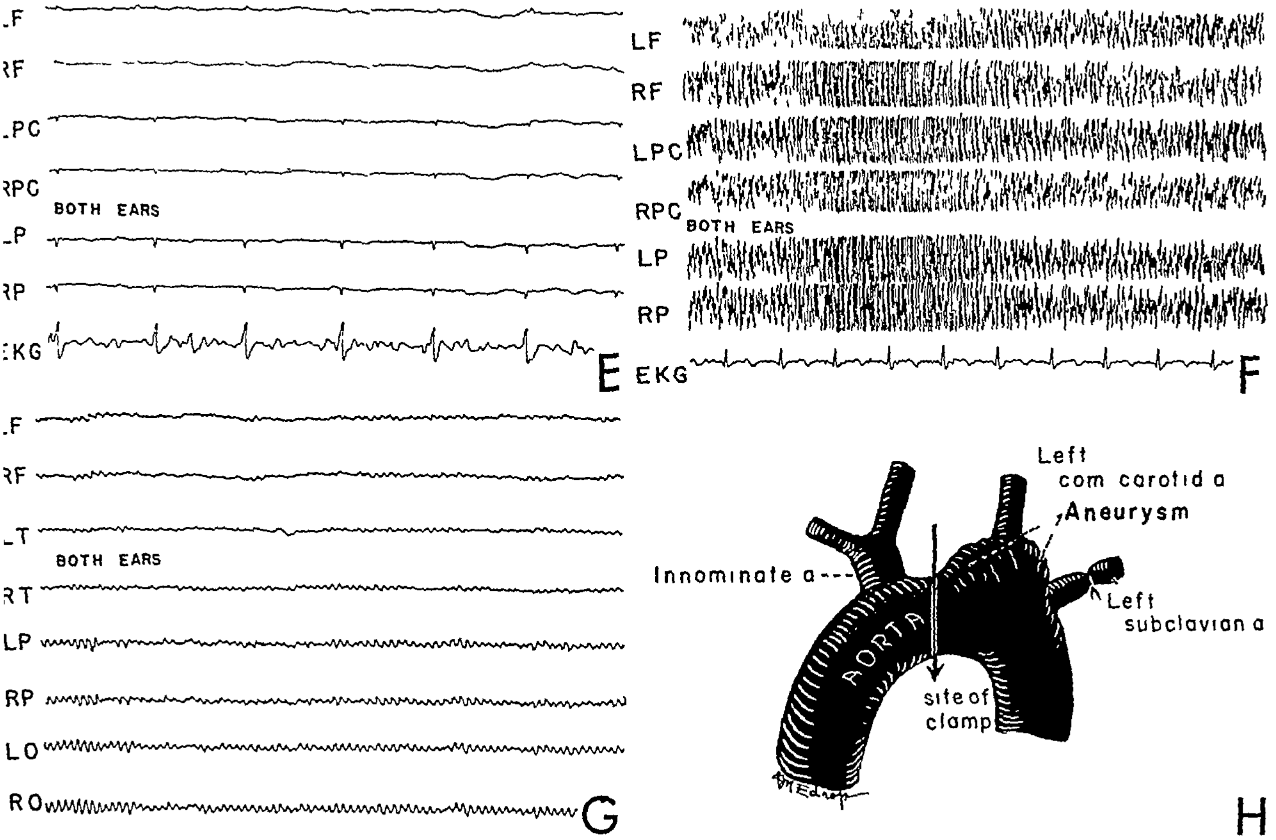


A, normal electroencephalogram taken one week before surgery showing 10 waves per second while patient was awake *B*, ele troencephalogram showing slow waves with superimposed fast waves during induction of anesthesia with thiopental (Pentothal sodium, and electrocardiogram showing normal sinus rhythm *C* Electroencephalogram showing 20 to 30 waves per second wit patient under ether–nitrous oxide–oxygen anesthesia, and electrocardiogram showing a sinus arrhythmia with a premature auricul beat *D*, electroencephalogram showing 2 to 3 slow waves per second at onset of hemorrhage, and electrocardiogram shown bigeminal rhythm

Comment

The electroencephalogram taken seven days before surgery (see figure, *A*) was interpreted as normal fo both the waking and sleeping states The electroen cephalogram during the induction of anesthesia wit thiopental (see figure, *B*) shows large slow waves an some superimposed fast activity that is the typical pat tern described by Bickford and co-workers[14] Th figure, *C*, shows a fast pattern of 20 to 30 waves pe second, which developed when the patient was shifte to ether–nitrous oxide–oxygen anesthesia and which similar to the one that usually occurs in the third plan of this type anesthesia

The hemorrhages were dramatically announced i the electroencephalogram by large slow waves tha were soon followed by flattening of the tracing (se figure, *D* and *E*) The complete absence of cortica rhythm was shown as a practically flat line on th electroencephalogram in part *E* The three hemo rhages lasted 1½ minutes, 4⅓ minutes, and 19½ min utes Such prolonged loss of cortical activity is usuall associated with irreversible cortical changes and sever cerebral anemia From a prognostic standpoint it wa considered, at the time of surgery, to be extremely dam aging After seeing this pattern, one of us (R L T commented that he believed the patient would not recover or that, if he did, he would be in a vegetative state The grand-mal-seizure discharge pattern (see figure, *F*) at first was thought to be an artifact due to muscular contraction, however, it could not be reproduced by manual rotation of the head Shivering was considered to be another possibility, but the tonic-clonic movements all occurred above the level of the spinal cord injury and were convulsive in origin The grand-mal-seizure activity in itself might suggest an adverse clinical course, but such activity has been previously described in experimental animals as occurring after rather than during prolonged cerebral anoxia[4] After a prolonged period of seizure activity as shown on the electroencephalogram, the seizures were terminated by the intravenous administration of amobarbital (Amytal) sodium to prevent further cerebral anoxia that might be incurred by further seizures (although the patient was still intubated) Part G of the figure shows the normal electroencephalogram taken seven days after surgery



E electroencephalogram showing no electrical activity (nonfunctioning cortex), and electrocardiogram showing normal sinus rhythm *F* electroencephalogram showing artifact due to movement and seizure discharge and electrocardiogram showing normal sinus rhythm *G*, normal electroencephalogram taken one week after surgery while patient was awake showing 10 waves per second *H*, drawing showing location of aneurysm in left common carotid artery

Summary and Conclusions

The prolonged periods of flattening of the electroencephalograph tracing that occurred in this case were not due to chlorpromazine, hypothermia, or anesthesia All of these were acting prior to the hemorrhages, and cortical activity was normal for the physiological state The flattening occurred simultaneously with the hemorrhages and was ushered in by a period of high-voltage, slow activity This is the change that occurs with severe cerebral ischemia, e g, cardiac arrest In order to produce flattening of this degree, an extreme deficiency in the oxygen supply to the brain is required Ischemia of this degree, if continued for a period of five minutes or more, might be expected to produce a decerebrate state It is true that flattening of the electroencephalogram can occur as a result of very deep anesthesia, with prompt and full recovery, but the flattening in this case is presumably based on cerebral ischemia due to blood loss Nineteen and one-half minutes of complete flattening of the electroencephalogram as a result of a severe hemorrhage most certainly would be expected to produce some evidence of cerebral damage Contrary to this expectation, no psychological, neurological or general behavioral impairment was evident The conclusive seizures after ischemia were not unexpected but they were also considered a poor prognostic sign Surprisingly, this was followed by a normal electroencephalographic tracing The paradox can be explained Chlorpromazine and hypothermia not only protect the vital centers of the brain, including respiratory and vasomotor, against the damaging effects of impaired blood supply but protect the cortex as well What would usually have been a disastrous ischemia now is completely tolerated without permanent damage

From a purely physical or thermodynamic standpoint, this protection could result from a reduced rate of reaction associated with hypothermia Van't Hoff's rule is that for each decrement of 10 degrees the rate of reaction is reduced one-half

The notes made during surgery indicate that the blood pressure could not be measured by any tactile or auditory method No pulse could be felt during all three hemorrhages The electrocardiogram, however, gave encouraging evidence of continuing heart action, with normal conduction

With chlorpromazine, hypothermia and light anesthesia, the human brain can survive for 19½ minutes in an ischemic state, with prompt and complete recovery of all cerebral functions, as is shown by the case reported

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COUNCIL ON DRUGS

Formerly The Council On Pharmacy And Chemistry

Report to the Council

The Council has authorized publication of the following report Nonproprietary terminology is used for all drugs that are mentioned, when such terminology is not considered to be generally well known, its initial appearance is supplemented by parenthetic insertion of names known to be applied to commercial preparations

H D KAUTZ, M D, *Secretary*

CURRENT STATUS OF THE TREATMENT OF GOUT

William D Robinson, M D, Ann Arbor, Mich

Substantial advances in the management of gout have been made in recent years Acute attacks of gout can now be terminated rapidly in most patients by the use of one of several medicaments By proper management, the frequency of such attacks can be diminished and the later complications of the disease minimized or prevented Although there is no known cure for gout in the strict sense of the word, results with the measures now available, if adapted to the stage of the disease and the needs of the individual patient, are distinctly better than those that could be obtained previously

Diagnosis

Although gout is less common than some other forms of joint disease, it is by no means rare It constitutes approximately 5% of the diagnoses in patients attending clinics devoted to arthritis and related diseases The most important factor in establishing the correct diagnosis is to keep the possibility of gout in mind The overwhelming preponderance of the disease in males and the characteristics of the acute attack, with an acute inflammatory reaction in or around one or a few joints developing in a relatively short time and subsiding after a few days or weeks without residual impairment of joint function, are well recognized The only pathognomonic finding is the demonstration of urate crystals in the soft tissues, as in the

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tophi of the ears, however, this finding actually represents a late complication of gout in a situation that should have been diagnosed many years before The roentgenographic appearance of punched-out lesions in the bones near the joint surface is suggestive of gout but cannot be considered pathognomonic Exactly the same type of lesion may be seen in other forms of joint disease, and, since these lesions represent osseous tophi, they are a late manifestation of the disease

An accurate diagnosis of pretophaceous gout can be made on the combination of three findings the characteristics of the acute attack, the demonstration of an elevated serum urate level, and the therapeutic response to an intensive course of colchicine, properly administered Many drugs taken for relief of acute articular pain usually cause a temporary decrease in the serum urate level that may interfere with diagnostic studies Such decreases may follow administration of salicylates, phenylbutazone (Butazolidin), probenecid (Benemid), corticotropin (Acth, Acthar, Corticotropin, Depo-Acth) and cortisone (Cortisone, Cortogen, Cortone) or related adrenocortical steroids Colchicine does not alter the serum urate level

Primary or idiopathic gout is associated with a genetically controlled abnormality of body chemistry, which is characterized by an elevation in the level of urates in the blood Studies with isotopic tracer techniques indicate that these patients have an increase in the "miscible pool' of urates in the body and that in at least a portion of these patients the hyperuricemia is attributable to overproduction of urates However, the exact relationship between the hyperuricemia and the acute attack of gout remains obscure There is no consistent alteration in the concentration of the urate in the blood at the time of acute attacks, nor is there evidence to indicate any acceleration of deposition of uric acid immediately before or during acute articular symptoms On the other hand, the late complications of gout center around the deposition of urates in cartilage, soft tissue, and kidneys, such deposition is undoubtedly influenced by the duration and degree of hyperuricemia These facts have definite implications with respect to the therapy of gout Measures effective in the treatment or prevention of acute attacks often have no effect on the hyperuricemia Measures directed at lowering the abnormally elevated blood uric acid level are ineffective in the treatment of the acute attack but are of vital importance in the prevention or correction of the late complications of gout

Treatment of Acute Attacks of Gout

Therapeutic measures are determined by the stage of the disease in the patient At least three drugs are reliable and effective in the relief of acute gout

Colchicine is a specific for gout and, if properly used, remains the most useful drug in the treatment of this disorder Colchicine is available in tablet sizes of 0 5 or 0 65 mg At the onset of symptoms, 0 5 (or 0 65) mg should be administered orally every hour, or 1 mg may be given every two hours This dosage is continued without interruption until one of three things happens pain is relieved, nausea or diarrhea develops, or a total of 7 5 to 10 mg (according to the patient s weight) has been taken When treatment is begun at the very onset of acute symptoms, the attacks can usually be terminated before gastrointestinal symptoms develop In an established attack, however, relief usually will not be obtained until the patient experiences some nausea or diarrhea To avoid unpleasant purgation, it is important to emphasize to the patient that the first loose stool constitutes diarrhea and that even if pain has not been relieved at this point, no further colchicine should be taken A prescription for camphorated opium tincture (paregoric) should be written at the time that the colchicine is prescribed, with instructions that 4 cc should be taken after each loose stool or every three hours for nausea

The tolerated dosage of colchicine is relatively constant for each patient Therefore, the patient should be instructed to note the number of doses taken in the treatment of his first attack In subsequent attacks, administration of colchicine can be stopped one or two doses short of the amount that produces diarrhea When a course of colchicine fails to relieve symptoms completely, or when symptoms have been relieved and then recur, the course may be repeated after a lapse of at least 48 hours After a course of colchicine has been completed, maintenance treatment with the drug in dosages of 1 to 1 5 mg a day should be instituted and continued for at least three weeks

Colchicine is also effective when given intravenously, the usual total effective dosage ranging from 1 to 3 mg The initial dose may be 1 or 1 5 mg , with subsequent doses of 0 5 to 1 mg given every six hours until pain is relieved Gastrointestinal symptoms may occur if the total dose exceeds 3 mg Care must be taken to insure that the injection is made intravenously, as colchicine solution is irritating if injected outside the veins

Since colchicine has no significant effect on other types of acute inflammation, including other forms of acute arthritis, the response to intensive use of this agent may be helpful in confirming the diagnosis The initial effect is essentially a subjective one, with relief of the excruciating aspects of the pain and of the patient s apprehension that pain may be produced by jarring or movement An additional 12 to 24 hours may elapse before there is convincing decrease in the objective evidences of inflammation, and three to four days may elapse before edema and tenderness have subsided

Phenylbutazone is also effective in the treatment of acute gouty attacks Effective control is usually obtained within 24 to 48 hours with a dosage of about 0 8 Gm daily Treatment may be initiated with a dose of 0 4 Gm and subsequent doses of 0 2 Gm given at intervals of four to six hours until pain has been relieved Phenylbutazone is not recommended for maintenance therapy, therefore, the patient should be treated with maintenance dosage of colchicine after the acute attack has been controlled Phenylbutazone has toxic potentialities including gastrointestinal irritation, hematemesis, granulocytopenia, sodium and water retention with edema, and, not infrequently, hypersensitivity skin reactions Although these reactions are less likely to occur when the drug is used only for a few days, nevertheless, vigilance in observing patients receiving this drug is essential

Administration of corticotropin in combination with a maintenance oral dosage of colchicine is also satisfactory in relieving acute gout within a few hours Long-acting preparations, usually purified corticotropin in a gelatin vehicle, are most convenient when administered as a single intramuscular injection equivalent to 100 U S P units of corticotropin, only occasionally is a second injection required 24 hours later Aqueous solutions of corticotropin may be administered intramuscularly in doses of 50 U S P units every six hours until relief is obtained, or corticotropin may be administered as a slow intravenous drip over a period of eight hours, in doses of 20 U S P units in 500 cc of a 5% dextrose solution Colchicine is given orally in doses of 0 5 mg every six hours after an initial injection of corticotropin and its administration continued until diarrhea occurs, usually within three to five days, the amount of colchicine given is then adjusted to maintenance levels

In our experience, the use of adrenocortical steroids (glucocorticoids), cortisone and hydrocortisone (Cortef, Cortril, Hydrocortone), and their synthetic analogs, prednisone (Deltasone, Deltra, Meticorten) and prednisolone (Delta Cortef, Hydeltra, Meticortelone), has not given as reliable or as consistent results in the treatment of acute gouty attacks as the use of colchicine, phenylbutazone, or corticotropin However, these preparations are at times useful in patients who do not respond well to colchicine or phenylbutazone and in whom the use of corticotropin is not practical In such trials cortisone or hydrocortisone may be given in doses of 50 mg every four hours and prednisone or prednisolone in doses of 15 mg every four hours until pain is relieved When the adrenocortical steroids or their analogs are used, the maintenance dosage of colchicine should be given concomitantly in amounts of 1 5 to 2 mg daily

The choice of an agent in the treatment of the acute attack will depend on the individual situation of the patient and on the presence or absence of associated conditions Colchicine undoubtedly continues to be the drug of choice in handling the majority of patients Its safety lies in the fact that the toxic effects are promptly recognized by the patient and use of the drug is discontinued Its specific effect in gout is often a diagnostic aid, phenylbutazone and the hormones will also have suppressive effects on conditions closely resembling gout Patients may be educated in the use of colchicine, beginning administration of the drug at the earliest sign of an impending attack There need be no undue concern with the danger of self-medication However, patients should be warned to keep the drug out of the reach of children because of its extremely poisonous effect when accidentally ingested Phenylbutazone has the ability to stop the acute attack without the gastrointestinal disturbances that usually accompany the successful use of colchicine in a well-developed attack, but its toxic effects are more serious and are less likely to be apparent to the patient Therefore, its use is preferably restricted to those patients who can be kept under close observation Corticotropin therapy is usually practical only in those patients who may require hospitalization It is particularly useful in severe attacks, in polycyclic attacks, and in patients who respond incompletely or only temporarily to colchicine Both corticotropin and phenylbutazone therapy should be avoided in patients with complicating conditions, such as heart disease, in which the effect on sodium and water retention may be disastrous A history of peptic ulcer is also a relative contraindication for their use

General measures useful during an acute attack of gout are relatively simple Bed rest is indicated if the attack is severe or if weight-bearing joints are involved, and the affected joints should be protected by a cradle for the bedclothes, with a splint or sling if necessary Dietary measures are not effective in the treatment of an acute attack, usually a soft diet relatively high in carbohydrate is advised A liberal fluid intake should be maintained Salicylates or, if necessary, codeine may be used to control the severe pain until the effect from more specific measures is obtained It is important that use of the joints should not be resumed too early during the subsiding stages of an acute attack Weight-bearing joints should be protected by the use of crutches until all tenderness and swelling, as well as the pain, have subsided

Interval Treatment

The objectives in the management of the intercritical period are twofold to prevent subsequent acute attacks and to prevent or treat the deformities and disabilities of chronic tophaceous gout by inducing negative urate balance

Prevention of Acute Attacks—The most effective medication for prevention of acute attacks is the uninterrupted use of colchicine in doses of 0 5 to 2 mg daily The number of patients with gout who have taken colchicine daily for a decade or more is sufficiently large to indicate with assurance that such a regimen has been beneficial Tolerance to the drug does not develop Most patients will be able to tolerate 1 5 mg per day in divided doses Occasionally, some patients cannot take more than 1 mg daily, whereas others will tolerate 2 mg per day Maintenance dosage should be given to all patients for at least three weeks after acute attacks and also during periods when factors that may precipitate acute gout are operative, such as acute infections, surgery, blood loss, emotional upsets, unusual exposure, or use of therapeutic agents such as liver extract and mercurial diuretics Major or minor surgery should be preceded by at least three days of maintenance therapy, which should be continued for at least one week after the operation The maintenance dosage of colchicine should be used indefinitely in patients having several attacks per year or in patients with evidence of chronic gouty arthritis In milder cases, the maintenance program may be adjusted to the experience of the individual patient and put into effect during periods of high seasonal incidence, unusual work load, or other precipitating factors Furthermore, all patients should be encouraged to recognize prodromal symptoms of an attack, such as diuresis, constipation, or unusual mood swings, and to increase colchicine dosage for one to two days in an effort to abort such attacks. They should also be advised to begin intensive colchicine treatment when the first symptoms representing acute articular involvement occur, rather than to wait for the attack to become fully developed.

The patient's history and experience should be carefully reviewed in an attempt to determine what precipitating factors are applicable to his individual problem. Insofar as possible, such precipitating factors should be minimized or eliminated. There is little scientific evidence that diet is an important factor in reducing the incidence of acute attacks, aside from the rare case of a patient in whom food allergy appears to be a trigger mechanism. Since many patients with gout are overweight, moderate caloric restriction with gradual weight reduction is indicated. Fasting or a sudden change to very low caloric diets may precipitate acute attacks. Moderate use of alcoholic beverages is permitted unless it clearly tends to induce acute attacks or unless there is impaired liver function.

Measures to Induce Negative Urate Balance.—Measures to induce negative urate balance consist of dietary restriction to limit exogenous precursors of uric acid and the use of a urate eliminant to increase renal excretion of uric acid. Recent studies indicate that the effectiveness of dietary restriction is definitely limited as a means of achieving negative urate balance. The availability of effective urate eliminants that can be administered safely over long periods of time permits a more consistent and greater reduction of the urates accumulated in the body than can be obtained by dietary restriction alone.

Exogenous sources of uric acid can be decreased by eliminating foods high in preformed purines, such as meat extracts, sweetbreads, liver, kidneys, anchovies, and smoked meats. In the majority of patients with gout, further dietary restriction does not seem justified. It has been clearly demonstrated by tracer studies that purines are synthesized in the body from the precursors of glycine, formic acid, carbon dioxide, and ammonia. Because of this lively biosynthesis of uric acid from the simplest precursors derived from virtually every foodstuff, the usefulness of dietary regulation as a means of suppressing endogenous urate production is of necessity limited. Preliminary evidence, however, shows that purine biosynthesis may be accelerated in both normal and gouty subjects by a high protein intake. Therefore, in patients with severe gout, a further restriction of purine intake and limitation of protein to 50 or 75 Gm. a day, taken, insofar as possible, in the form of plant and dairy product protein, may be indicated.

Urate eliminants are used primarily to achieve negative urate balance and hence to prevent or decrease urate deposition in the tissues. Their effect in reducing the serum urate level is a good index of the extent to which the reduction of the body pool of urates has been achieved.

Probenecid, a potent urate eliminant of low toxicity, increases the urinary excretion of urates by a highly selective inhibition of the resorption of urates from the renal tubule. This results in an increase of urate excretion in the urine from 30 to 200% above base-line levels. This increase in excretion is often not maintained after the first few weeks of probenecid administration, but the increase in urate clearance and depression of serum urate levels persist as long as the drug is administered. The decrease in hyperuricemia is accompanied by a decrease in the size of the "miscible" urate pool and an increased rate of urate turnover. Prolonged administration of the drug can reduce the serum urate level, often to normal, it can minimize the deposition of urates in the tissue and decrease the size of established tophi.

The drug is administered in dosages of 0.5 to 1 Gm. twice daily. Treatment is usually initiated with a dosage of 0.5 Gm. twice daily, and, if serum urate level has not been restored to normal after two weeks, the dosage is increased to 1 Gm. twice daily. Since the effect lasts only as long as the drug is taken, patients who are receiving probenecid should be advised to take this medicament indefinitely. Some patients may experience acute attacks of gout soon after the initiation of probenecid therapy, therefore, it is wise to place all patients on maintenance dosages of colchicine prior to and during probenecid administration. Probenecid has no effect in the treatment of individual acute gouty attacks. There is usually no decrease in the frequency of attacks during the first few months after administration of this drug, however, in patients who have been on probenecid therapy for one to two years, there often is a decrease in the frequency and severity of the acute attacks.

The effect of probenecid is completely nullified during the administration of acetylsalicylic acid (aspirin) or other salicylates. Toxic manifestations to probenecid are infrequent and usually not serious. Occasionally, drug rash and gastrointestinal disturbances have been noted, and two serious anaphylactic reactions have been reported. Renal colic and urate calculi may occur during administration of this or any other urate eliminant, but this danger can be minimized by regulation of dosage and by maintenance of a high urine volume.

Some workers advocate the use of probenecid in all stages of gout as soon as the diagnosis is established. However, the clinical course of gout is extremely unpredictable, and the recommendation of prolonged medication to the patient who has had only a few acute attacks and who presents only a mild degree of hyperuricemia may be questioned. From the practical point of view, if such advice is given, it is rarely followed. This drug is clearly indicated in patients with osseous or soft tissue tophi or with chronic gouty arthritis and also in those patients who, because of the clinical course or a sustained degree of hyperuricemia, appear to be candidates for development of these complications. At times it also seems worthwhile to add probenecid therapy to the program of patients with frequent acute attacks of gout, in the hope that after months of its administration the frequency of such attacks may be lessened.

Other drugs have definite urate-eliminant effects, but they possess other qualities that make them less desirable for prolonged use as therapeutic agents

Large doses of salicylates will definitely increase the uric acid excretion and decrease the serum urate level, but the dosage required for such prolonged action ranges from 6 to 9 Gm. per day. Few patients will tolerate such doses for very long. Phenylbutazone also has a definite urate-eliminant action when the plasma level of this drug exceeds 10 mg. per 100 cc. Relatively large doses are required to attain such a plasma level. Because of the toxic potentialities of this drug, its long-term use is not recommended when the desired results can be obtained by safer medication.

Treatment of Chronic Gouty Arthritis

The first step in the management of chronic gouty arthritis is to control the inflammatory involvement, which really represents a prolonged, continuous, or polycyclic acute attack. If relief cannot be obtained with colchicine, short courses of treatment with corticotropin in doses of 100 U. S. P. units per day, gradually tapering off over a total period of 10 to 14 days, may be helpful in unusually severe cases. Similar short courses with phenylbutazone in doses of 0.2 Gm. three or four times a day are also effective.

As the inflammatory element comes under control, the patient should be placed on the maintenance dosage of colchicine described previously. Probenecid should be introduced to obtain its long-range effect. Physical medicine and the application of orthopedic principles have much to offer the patient with severe crippling gouty arthritis. The exact methods used should be adapted to the general conditions of the patient and to localized joint involvement.

Surgery has a definite place in the treatment of chronic gout. Tophi should be excised if they become troublesome because of size, location in areas exposed to trauma, interference with joint function, or the development of discharging sinuses. Extensive involvement of the bones of the fingers and toes may require amputation.

Summary

Advances in the methods of treatment of gout permit effective control of the acute attacks and offer real hope that the advanced stages and late complications of gout can be prevented. Several effective methods are available for the treatment of acute attacks. Oral administration of colchicine remains the treatment of choice in the great majority of patients. Its successful use is dependent on promptness of instituting treatment, adequacy of dosage, and proper timing of the doses. Alternative reliable and effective methods in the relief of acute gout are intravenous administration of cholchicine, oral administration of phenylbutazone, and the combination of corticotropin given parenterally with maintenance doses of colchicine. The use of urate eliminants such as probenecid has no effect on acute attacks.

Treatment between attacks has the twofold objective: to decrease the frequency of recurrent acute attacks and to prevent or treat the deformities and disabilities of chronic tophaceous gout by inducing negative urate balance. A maintenance dosage of colchicine given orally is the most effective medication in reducing the incidence of recurrent acute attacks. Dietary restriction of food containing preformed purines is helpful in obtaining a limited degree of negative balance, but a much greater effect can be obtained with administration of urate eliminants. The use of urate eliminants is helpful in the treatment of tophaceous gout and is definitely of value in preventing the development of the advanced stages of the disease.

It is important that the program of management be adapted to the individual patient and that it be varied according to the stage of the disease.

The Rackham Arthritis Research Unit is supported by a grant from the Horace H. Rackham School of Graduate Studies.

Adrenal Crisis Now Not Uncommon.—Adrenal crisis was once rare and almost confined to Addison's disease. In these days of more frequent adrenal surgery it is not uncommon. It may be seen in a variety of different forms (Hart, 1956): (1) during or after adrenalectomy if therapeutic cover is inadequate, (2) in Addison's disease, (3) rarely in Simmond's disease, (4) in adrenal apoplexy (Waterhouse-Friderichsen syndrome), (5) in the face of severe stress after adrenalectomy—that is, relative cortisone deficiency, and (6) in the face of severe stress in non-adrenalectomized subjects whose adrenal cortices have been depressed by prolonged cortisone therapy, as in long-term therapy of rheumatoid arthritis. The diagnosis, as mentioned below, must not be confused with that of water intoxication, where the patient has been overhydrated. In the acute form of this (water intoxication) syndrome marked mental disturbances occur, with disorientation, weakness, fits, and even coma; such cases can prove fatal and must be clearly differentiated from the true adrenal crisis before therapy is initiated. In the treatment of adrenal crisis hydrocortisone (free alcohol or hemisuccinate) may be given intravenously; Lundy (1955) has reported on the use of water-soluble hydrocortisone. Cortisone acetate by mouth may be vomited, and by the intramuscular route is too slow in action. We usually give 100-300 mg. of a suitable preparation of hydrocortisone in a saline infusion over a period of some 6 to 24 hours, but it may be given in severely prostrated ill patients more quickly and in larger amounts than this. In severe salt-losing cases in crisis we have given 9α-flurohydrocortisone intravenously in one-twentieth the dose of cortisone given above with good results.—F. D. Hart, M.D., Treatment of Adrenocortical Deficiency States, *British Medical Journal,* Feb. 23, 1957.

COUNCIL ON FOODS AND NUTRITION AND COUNCIL ON DRUGS

Report to the Councils

The Council on Foods and Nutrition and the Council on Drugs have authorized publication of the following report.

Philip L. White, Sc.D., *Secretary,*
Council on Foods and Nutrition
Harold D. Kautz, M.D., *Secretary,*
Council on Drugs

FLAVONOIDS IN HUMAN NUTRITION AND MEDICINE

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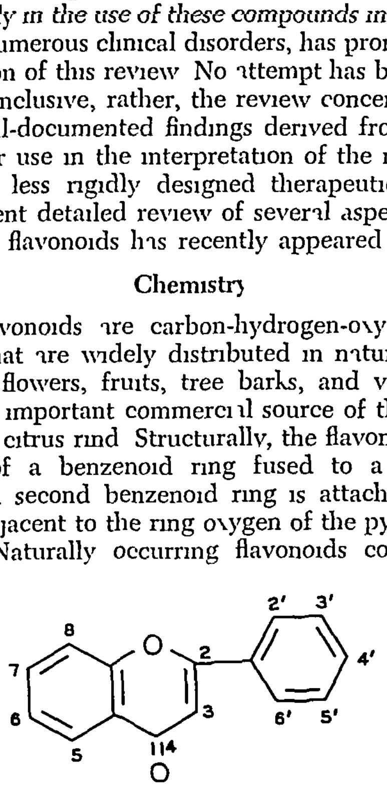
The recent upsurge of interest in the flavonoids, *particularly in the use of these compounds in the treatment* of numerous clinical disorders, has prompted the compilation of this review. No attempt has been made to be all-inclusive, rather, the review concentrates on a few well-documented findings derived from animal studies for use in the interpretation of the more controversial, less rigidly designed therapeutic reports. An excellent detailed review of several aspects of the subject of flavonoids has recently appeared.[1]

Chemistry

The flavonoids are carbon-hydrogen-oxygen compounds that are widely distributed in nature as pigments in flowers, fruits, tree barks, and vegetables. The most important commercial source of these compounds is citrus rind. Structurally, the flavone nucleus consists of a benzenoid ring fused to a γ-pyrone moiety. A second benzenoid ring is attached to the carbon adjacent to the ring oxygen of the pyrone (see figure). Naturally occurring flavonoids contain hydroxyl or substituted hydroxyl groups, usually in the 3, 5, 7 and 2′, 3′, 4′ positions. Also, these compounds frequently exist as glycosides with the sugar (ordinarily rhamnose or rhamnoglucose) attached at the 3 or 7 position. Important compounds are the flavonols (hydroxyl group replacement of hydrogen in the flavone nucleus), flavanones (reduction of the 2,3 double bond), flavanols (hydroxyl substitution, reduction at the 4 position, and reduction of the 2,3 double bond), and the isoflavones (benzenoid ring attachment to carbon 3 instead of carbon 2).



Toxicity

As one might expect from their occurrence in common plant foodstuffs, the flavonoids have a very low order of toxicity when taken orally. Subcutaneous and intraperitoneal injections of many flavonoids in relatively large amounts have also indicated a very low toxicity.

Nutritional Significance

Considerable interest in the possible nutritional significance of these compounds was aroused and championed by the reports of Szent-Gyorgyi and his coworkers[2] in the late 1930's. These investigators isolated a material from the peels of citrus fruits that they called 'citrin' and reported it to be effective in decreasing capillary permeability in man. They also reported that scorbutic guinea pigs fed "citrin" not only outlived but had fewer tissue hemorrhages than their controls. Thus it was concluded that scurvy, as then produced in the guinea pig, was due not only to a deficiency of ascorbic acid but also to a lack of the Permeabilitats-Vitamin (Vitamin P) as well. Shortly thereafter it was reported that the major ingredient in "citrin" was the flavanone, hesperidin, hence the implication that the flavonoids were of a vitamin nature. It soon developed, however, that these findings could not be duplicated in other laboratories, and in 1938 Szent-Gyorgyi reported that he could not completely confirm his earlier experiments. Likewise, the relatively recent reports of Scarborough,[3] who claimed to have produced vitamin P deficiency in two individuals, have not been confirmed.

As the matter now stands, there is no convincing evidence that any member of the flavonoid series is a required dietary nutrient for any known species. This was recognized in 1950 when the Joint Committee on Biochemical Nomenclature of the American Society of Biological Chemists and the American Institute of Nutrition recommended that the term "Vitamin P" no longer be employed.[4] No findings have appeared since then that would necessitate revision of this recommendation. In recent years, the term "bioflavonoid" has come to replace the term 'Vitamin P.' The latter however, still frequently appears in the literature

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Effects on Capillary Fragility and Permeability

Because the original reports of the Szent-Gyorgyi group claimed that flavonoids were capable of decreasing capillary fragility in the human, a large percentage of the therapeutic studies of flavonoids deals with disease conditions that supposedly predispose the body to increased capillary fragility The techniques employed in these studies deserve some scrutiny

Fragility (the amount of resistance of the walls of a vessel to rupture and the ensuing leakage of red blood cells into the tissue spaces) has been routinely measured by applying negative or positive pressures to skin areas for various periods of time and then counting the petechiae, if any Changes in wall permeability (the property of the vessel wall that permits passage of water and solutes) have usually been studied by measuring the rate of movement of certain dyes across the capillary wall into the adjacent tissues

The validity of the techniques used in estimating fragility has been questioned It has been shown in the human that the correlation between the positive and negative pressure techniques for measuring vessel fragility is low, furthermore, the reproducibility of results using either technique is unsatisfactory[5] The method used for the measurement of permeability is somewhat more reliable Nevertheless, the interpretation of results dealing with apparent changes in capillary fragility or permeability is not simple, since such changes can be the result of any one or several of a number of hemodynamic factors For example, apparent changes in fragility or permeability may arise from changes in the structure of the vessel wall, from changes in blood volume, or from alterations in blood pressure

Although a favorable effect of flavonoids on capillary fragility and permeability in man has not been convincingly established, there is some evidence from animal studies that such an effect might be possible For example, it has been found that certain of the flavonoids have antioxidant activity in vitro (and possibly in vivo) toward both ascorbic acid and epinephrine The protective effect of flavonoids against the copper-catalyzed autoxidation of epinephrine in vitro has been postulated as being due to copper chelation by the flavonoid or to formation of a flavonoid-epinephrine complex with the flavonoid then being preferentially destroyed[6] It is possible that these antioxidant properties may partially explain the pseudovitamin effects noted by the early workers, but similar studies of the influence of flavonoids on ascorbic acid autoxidation do not appear to have been carried out A definitive study is needed to clarify the physiological relationship, if any, between flavonoids and ascorbic acid

Ambrose and DeEds[7] have proposed that the epinephrine-protective action of the flavonoids may explain their findings in the influence of flavonoids on vascular permeability in the guinea pig These workers studied the visualization of trypan blue in shaved, chloroform-irritated skin areas of rabbits before and after the intravenous injection of rutin This flavonoid appreciably increased the time required for visualization of the dye Similar findings were recorded by Bohr and associates[8] in studies of the guinea pig, in which Evans blue dye was used It is suggested that the flavonoids may prevent the destruction of epinephrine, with a resulting potentiation of vasoconstriction and subsequent decrease in capillary blood flow Further insight into this question has been provided by Schiller,[9] who quantitated, by photometric means, the transport of fluorescein from capillaries into adjacent areas when rutin or ascorbic acid was introduced intravenously The effects of injecting epinephrine and arterenol (nor-epinephrine) at the site of the fluorescence readings in the presence and absence of an adrenergic blocking agent, phenoxybenzamine hydrochloride (Dibenzyline), were also recorded The delay of the transport of fluorescein produced by administration of rutin, even in the presence of phenoxybenzamine, may be interpreted as evidence that rutin not only prolonged the action of epinephrine (prevented autoxidation) but had an independent vasoconstrictor action as well Additional evidence has been presented for an independent vasoconstrictor action of flavonoids by these and other workers[10] It should be emphasized that these are not unique pharmacological properties and that they are rather weak when compared to those of other available agents

By extrapolation from these animal studies, present knowledge of flavonoids in this area may be summarized by stating that if flavonoids affect capillary fragility and permeability in man, they may do so because they possess certain pharmacological properties and not because they are normally involved metabolically or structurally in maintaining the integrity of the vessel wall

Effects on the Common Cold

Several brief clinical reports have been published, claiming that flavonoids have a remarkably favorable influence on common respiratory infections by virtue of their supposed capacity to increase capillary resistance Recently, considerable publicity has been given to the use of these substances in the treatment of the common cold, and several 'cold' preparations containing flavonoids have actually appeared on the market The best clinical studies of this claim have appeared recently in THE JOURNAL Franz and co workers[11] carried out a controlled study on 89 individuals Placebos, flavonoid plus ascorbic acid, ascorbic acid alone, and flavonoid alone were administered to four groups for a period of three months Neither the subjects nor the examiners knew the content of the capsules taken From the findings, it was concluded that flavonoids affected neither the incidence or cure of colds nor the ascorbic acid levels of the blood serum

The detailed report of Tebrock and associates[12] is probably the most definitive clinical report in the flavonoid literature and may serve as an example for those who are engaged in evaluating the clinical effects of drugs These workers studied the effects of placebos, flavonoid plus ascorbic acid, flavonoid alone, and ascorbic acid alone, in combination with a standard palliative preparation, on colds occurring in nearly 2,000 persons Neither the patients nor the examining physicians knew the identity of the administered medicament In the opinion of the investigators, there is a singular lack of effect of both flavonoids and ascorbic acid in altering the course of the common cold In no instance did apparent differences reach the 1% level of significance, and, in most cases, simple inspection of the data is sufficient to deny significance

These results contrast sharply with those of Macon,[13] who reported a high rate of relief of cold symptoms in 121 patients (74 2%) on the second day of treatment with capsules containing 100 mg of flavonate glycoside, 50 mg of ascorbic acid, and 226 8 to 291 6 mg of acetylsalicylic acid This worker also noted a 50 9% improvement with the 'control' preparation which contained 84 24 mg of acetylsalicylic acid, 64 8 mg of acetophenetidin, and 12 96 mg of caffeine Since this preparation was not a true control (that is, quantitatively and qualitatively similar except for one ingredient), the apparent 23 3% superiority of the test preparation cannot be properly regarded as due to its bioflavonoid content Furthermore, in assessing the results of a study of this sort, it is important that individual bias be held to a minimum It is not possible to determine from the limited data presented in this paper how well this was accomplished For example, it is not clear how many examiners were involved or whether the patient or examining physician knew the type of medicament being given However, a study encompassing 1,831 workers is still in progress and will be the subject of an extended report It is hoped that the publication of this study will answer the questions that arise in connection with the initial report and will be presented in a fashion susceptible to statistical interpretation On the basis of the best evidence now at hand, it would appear that flavonoids have no significant effect, palliative or otherwise, on the course of the common cold

Other Clinical Applications

The effects of flavonoids on such clinical entities as hypertension, diabetes, rheumatic fever, arthritis, and pregnancy have been studied In addition, flavonoids have been used in the treatment of nonthrombocytopenic purpura, vascular purpura, allergic purpura, idiopathic thrombocytopenic purpura, and hereditary hemorrhagic telangiectasis It is not possible to reach a valid conclusion as to the efficacy of flavonoid treatment in these conditions because of (1) the general unreliability of the techniques employed, (2) the absence of double-blind placebo controls, and (3) the spontaneous remissions that are known to occur during the course of many of these conditions Although it is admittedly difficult to obtain ideal experimental conditions in clinical situations, the therapeutic studies of the flavonoids seem to suffer peculiarly from lack of proper design It is also likely that the reluctance of individuals to publish negative findings has resulted in a more favorable literature than is deserving

Absorption and Metabolism

Evidence concerning the absorption and metabolism of the flavonoids is incomplete and somewhat contradictory, but it is encouraging to see that some work is at last in progress along these lines Apparently the most thorough investigations in this area have been carried out by Murray and co-workers[14] This group has recently presented evidence that metabolites of flavonoids were excreted in the urine of the rabbit and rat after oral administration of flavonoids After the feeding of rutin or quercetin, homovanillic acid, 3-hydroxyphenylacetic acid, and 3,4-dihydroxyphenylacetic acid were found Of these, the last compound accounted for some 25% of the quercetin fed It was also reported that administration of either hesperidin or homoeriodictyol resulted in urinary excretion of 3-hydroxyphenylpropionic acid by the rabbit Administration of homoeriodictyol also gave rise to dihydroferulic acid, and the feeding of naringenin resulted in the excretion of 4-hydroxyphenylpropionic acid It is also stated in this report that a conjugate of unspecified nature of the parent substance administered was excreted

Physiological and Pharmacological Functions

In addition to their supposed vascular functions, numerous other physiological or pharmacological functions have been proposed for the flavonoids, but few have stood the test of time For example, reports that the phosphorylated flavonoids are antifertility factors remain unconfirmed, and claims that certain flavonoids and their derivatives are involved in the sexual process of algae have been denied Only one other function of the flavonoids seems to be sufficiently documented and clear to warrant recognition Certain of the isoflavones present in clover, alfalfa hay, and soybean meal are estrogenic However, the relatively low potency of these compounds (1/50,000 that of diethylstilbestrol) suggests that they may not account for all of the estrogenic activity of subterranean clover, the consumption of which has been found to lead to a reproductive disturbance in sheep[15]

Summary

The high hopes once held for the flavonoids as important metabolites have not materialized Instead, present knowledge indicates that, while they possess mild pharmacological properties under certain conditions, the flavonoids have no known nutritional functions They cannot be regarded as essential nutrients Those workers who claim therapeutic value for the flavonoids have not supported their claims with data obtained from well-controlled clinical studies Until such studies are made, it must be concluded that the flavonoids are of little or no value in the treatment of disease

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The Team of Private Practice and Public Health—In the health field [we must recognize] how different are the major health problems of today from those which concerned us a few years ago Due largely to the development of preventive health practices, clinical and public health, and to the use of antibiotics in treatment, acute illnesses have ceased to be the major threat to the health of the Nation Our number one problem now is chronic illness and disability The logical role of the public health agency in the community is to initiate [community] planning and to provide many of the special services required by your patients with chronic disease and disability The team or group approach, in which physicians, health official and other specialists participate, is mandatory in discharging these responsibilities This approach implies a mutuality of respect and responsibility on the part of all persons involved A first step, obviously, is to define the problem Here the public health approach may prove particularly helpful Through epidemiologic studies, public health agencies have often learned how a disease can be controlled even before its etiologic agent is known Retrolental fibroplasia, endemic goiter, and pellagra are well known examples Similar studies have demonstrated the relationship of rubella in the first trimester of pregnancy to the occurrence of congenital health disease in the infant, and the relationship of streptococcal infections to the subsequent development of rheumatic fever It is quite possible that epidemiologic studies of cancer, hypertension, coronary artery disease and other chronic conditions may prove equally lucrative Group planning and action calls, first of all, for a certain attitude of mind toward the changes that have occurred and the contributions others can make—a tolerance of ways and thoughts which are not necessarily ours, an open mind in the free spirit of science, a ready acceptance of the best from any and every source, an attitude of rational receptiveness rather than antagonism to new ideas—L E Burney, M D, What Can Public Health Contribute to the Private Practice of Medicine, *Diseases of the Chest*, February, 1957

MEDICINE AT WORK

SAGA OF THE DISASTER DOCTORS

HOW THEY HELPED BATTLE A PAPER ENEMY THAT BECAME REAL

Milton Golin

It is just make believe, this 'war" in Europe last June, but to 40 physicians of the Calcasieu Parish Medical Society, meeting in a Lake Charles, La, restaurant, it might well be the start of World War III They are getting ready in earnest for the fourth annual U S civil defense exercise—planning emergency procedures, reviewing assignments for the society's 98 members, and discussing aggressions of the paper enemy

Already, the "enemy is supposed to have invaded a friendly nation abroad In three days, according to the exercise blueprint, the President will call Congress into session On July 12, some 165 nuclear bombs would rain on key American targets, and tens of millions would die—all on paper Of course it is not going to happen, but this night of Tuesday, June 25, is the last time for the medical society to plan its role in the test because the next regular meeting will be late in August

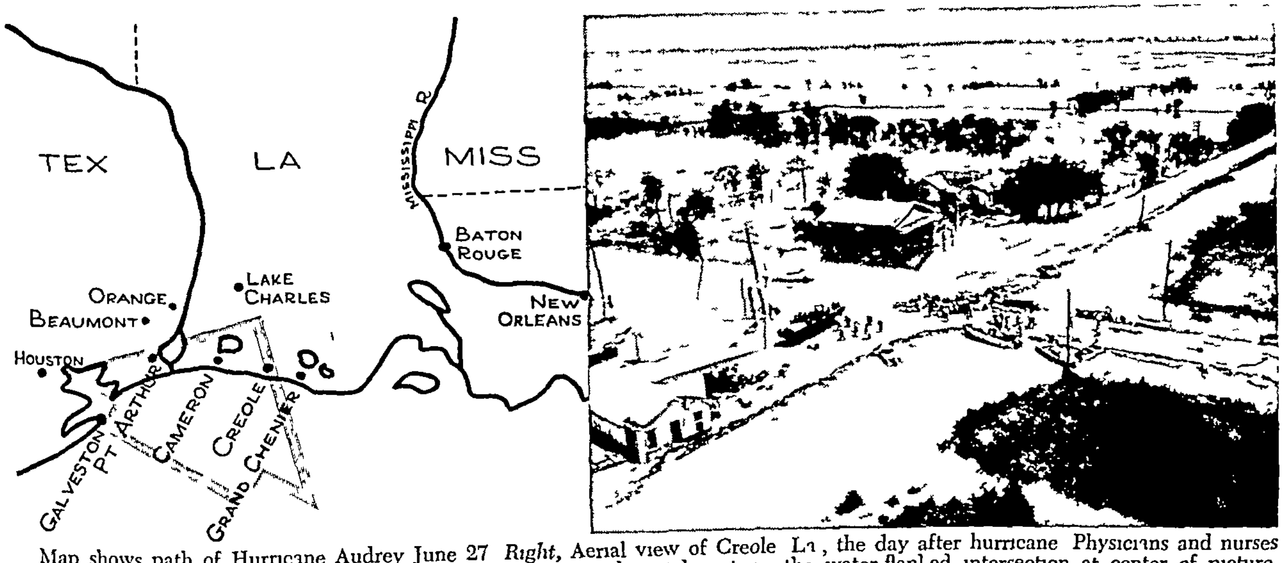
Unknown to them, a real enemy is gathering its forces at that very moment 300 miles to the southeast over the Gulf of Mexico Swirling wind currents are giving birth to a wicked child already named Audrey, the first hurricane of the 1957 season The doctors go home that night into calm, clear, and warm weather Some of them are mulling over the fact that civil defense plans call for evacuation 36 miles south to the coast, to Cameron parish which has only three physicians and no medical society of its own On this night in Cameron, off-shore oil derricks silhouetted against the gun-metal sky belie the area's one-time fame as a muskrat-trapping center Shrimp boats and oil barges are tying up along the jetties

Meanwhile, in the radio stations and newspaper offices, United Press teletypes are clattering off a weather advisory, then another and another A "tropical disturbance is setting a definite course toward the western Louisiana and eastern Texas Gulf Coast But the physicians, fresh from a briefing session on disaster, do not know this yet Hardly anybody does It is past midnight and the bayou country is asleep

Wednesday, June 26, dawns much as the day before Morning papers and radio newscasts are informing communities at their breakfast table that a big storm is coming Most folks, many of them French-speaking, are not too alarmed, they have seen bad weather before But some are worried Cameron Parish Sheriff O B Carter, warning residents of Cameron, Creole, and Grand Chenier to evacuate, describes those towns as 'nothing but hills in the swamp" A few of the coastal residents, just a few, begin getting ready to leave the area

Consternation in Texas

In adjoining Texas, though, there is consternation, and more people are planning evacuation northward You might say this is a mass reflex action peculiar to Texans these days, because that state s middle name has been catastrophe First in the nation in number of all disasters (some 250, killing over 1,000 persons in the last decade alone), first in tornadoes, second in hurricanes, first in devastating floods And as the news reports come in, memories are still fresh—memories of the Dallas tornado of April 2, the grim Lampasas flood of May 12 (said to be the worst flood in recent Texas history), the Silverton tornado of May 16 There have



Map shows path of Hurricane Audrey June 27 *Right,* Aerial view of Creole La, the day after hurricane Physicians and nurses from Lake Charles set up a 200 bed civil defense emergency hospital unit on the water-flanked intersection at center of picture Note Army duck nearby (Photo from Houston *Chronicle*) been other Texas floods and over 120 tornadoes this year, and now only 10 of the state's 254 counties can boast they have not been eligible for federal disaster aid since 1950

Little wonder, then, that southeast Gulf Coast Texans, disaster-shy, are packing for exodus on June 26 Late that night in Port Arthur, Texas, a 39-year-old surgeon, Dr Robert S Browne, reads in his newspaper that the storm might even bring a 5-to-9-ft tidal wave by noon the next day Louisiana authorities are offering help to Texas, which is expected to feel the main punch of the hurricane Dr Browne is ready to serve

Across the river in Cameron, La, 33-year-old Dr Cecil W Clark, living the life of a typical country doctor on native soil, reviews his day's work He had waved goodbye to his three children at home four miles east of Cameron (two other youngsters were at his mother's home outside the area), and that day he had been the first to set eyes on three other children, babies he delivered in his 12-bed clinic-hospital There in Cameron, Dr Clark comforts the new mothers and another patient, a man recovering from an injured knee

Fifteen miles away in Creole, La, 30-year-old Dr Stephen E Carter is thinking of his family in Baton Rouge And 36-year-old Dr George W Dix, peering at the sky, is wondering how a bachelor such as himself might find medical practice under these conditions in Africa A lover of remote, semitropical nature, he picked Creole because it seemed to have some of the primitiveness of Africa

Now the wind is coming in off the Gulf, picking up speed Up in Lake Charles, officials of radio station KAOK are playing it safe by asking for the loan of an Air Force emergency generator in case of power failure With each whistle of wind, doctors in Calcasieu parish recall details of last night's civil defense plan In the Lake Charles Memorial Hospital, Administrator Joseph W Hinsley, who is also the local civil defense coordinator, stays up for the latest newscast, it says the storm is moving at seven miles an hour toward Galveston and is due to hit the coastal region late the next day, June 27

Audrey Becomes Full Blown

It seems that Hinsley has just fallen asleep when his phone rings It is a 1 a m report from the civil defense mutual aid network The hurricane is becoming full blown in Texas at Galveston, Beaumont, Port Arthur, and Orange Advance gales already are battering the Louisiana coast Power failures are blacking out the Cameron–Creole–Grand Chenier area The storm is turning into a whip It is due to hit Lake Charles in full force at noon, eight hours ahead of schedule

By 3 a m more than 20 physicians and nurses who were supposed to assemble after dawn are in the hospital lobby, ready for action (At that moment in nearby Jefferson county, Texas, schools are opened for refugees) Not many are sleepy-eyed as they take stock of cots and stretchers, order extra supplies of food and oxygen, distribute linens and medical supplies, and arrange for filling several thousand milk cartons with water Large windows are braced and taped, roof hatches are battened down, the hospital's electric generator is hooked up, and trash collections are put on an hourly basis Elective surgery is cancelled, and convalescents able to do so are urged to return home

As dawn manages to outrace the wind, people from the surrounding area begin drifting into all three hospitals in Lake Charles for better housing protection Among them are an influx of prospective maternity cases At Memorial Hospital alone, 12 babies are born in the next 24 hours, 2 on stretcher carts during the height of the hurricane Down in Cameron, meanwhile, Dr Clark's wife is huddled with her three children as the hurricane whirls at 110 miles an hour He had left their home earlier, on a 2 a m telephone report that water was reaching his hospital and patients Eastward along the coast, Dr Dix fights against the wind in order to reach home across the road from his clinic building Seconds later he returns to find the clinic gone, it has been picked up and deposited in a marsh a mile and a half away The office of Cameron parish's third and only other physician, Stephen E Carter, also is destroyed in the waters sweeping over Creole

It is now approaching noon in relatively plush Lake Charles The hurricane announces its arrival by smashing a braced 6-by-12-ft hospital window Glass spatters over Administrator Hinsley and onto a half dozen large pans of food set on a steam table for lunch So the dining room is evacuated, the menu is changed to cold cuts, and Hinsley's head is bandaged

Next comes a power blackout The hospital generator is switched on, and so is the one at radio station KAOK But St Patrick's Hospital in Lake Charles is plunged into darkness and terrible quiet They telephone Memorial Hospital "Could we borrow your civil defense emergency generator?" It arrives there in a few minutes At 6 p m the winds are dying down, and hundreds who sought shelter in the hospital lobbies start the muddy trudge home Hinsley and his staff leave, too By now along the coast, however, there is horror and death After 12 hours of effort, distress calls are finally sent—to reveal a disaster which could not have been contemplated outside that immediate primitive area

Rescue Operations Begin

Once the word goes out, it is relayed quickly Louisiana had offered to help Texas, now that the storm has veered into Creole, Cameron, and Grand Chenier, it is the Texas State Civil Defense Office which is placing all its resources at Louisiana's disposal At 11 30 p m Thursday, Hinsley hears a KAOK newscast civil defense is preparing to send a health service unit into Cameron parish He switches roles from hospital administrator to parish civil defense coordinator, learns that the health unit he must help organize will have to handle 1,000 casualties and that Army amphibious trucks ('ducks') are already on the way and will arrive at 4 a m Hinsley assembles his medical force for another 3 a m meeting in the hospital lobby Still, none are sleepy-eyed

A large van recently bought for the purpose is sent to a warehouse on the outskirts of Lake Charles, where a 200-bed hospital unit (one of several thousand Federal Civil Defense Administration facilities scattered in isolated parts of the nation) is stored Only a few months ago Hinsley and other medical volunteers had color-coded the 256 separate cartons of the hospital unit, so that it could be set up more swiftly This was done even before medical civil defense workers in Texas had demonstrated in a pioneer ever cise that such planning was a "must" Only a few days earlier, doctors in Louisiana and elsewhere in the nation had received their latest issue of THE JOURNAL, which described the hospital setup test Now the Lake Charles unit is to be the first in the nation to be used in an actual disaster

Just before dawn it is loaded from the van onto "ducks" for the trek southward Along goes Hinsley, his assistant, a dozen physicians, and 16 nurses They pass through the most devastated country any of them has ever seen Dead cattle float past them, other animals stand marooned on small patches of roadway Fallen electric wires and debris block the caravan's path from time to time Low-hanging power cables injure a male nurse and a magazine photographer when they fail to duck in time In an hour the party stops at Gibbstown to give first aid

They continue to Creole, or what is left of it There is no place to assemble the hospital unit except in the road, on a site practically surrounded by water So that's where they organize medical headquarters, it takes them about 30 minutes (Without previous rehearsals and color-scheming of parts, it would have taken about five hours to set up) With a base established, the watery caravan splits up One contingent of 'ducks heads for Cameron and another in the opposite direction for Grand Chenier Physicians owning their own boats shuttle supplies to both towns and bring back refugees to Creole and Lake Charles Many of the injured are treated and tagged before evacuation

It is clear now that there must have been panic among thousands of residents in the three communities strung parallel to the coast, since the tidal wave had washed directly across the only good road—the one connecting the three towns There was no dry escape to the north

Another dawn breaks at Lake Charles, illuminating the Coast Guard ship Bluebonnet as it arrives with the first survivors—41 men, women, and some children whose faces still wear the shock of seeing whole families wiped out, communities smashed, victims screaming as they hang from rooftops, barbed wire fences, and tree limbs At first, some of these accounts are incredible to doctors and nurses at the designated casualty sorting center in the McNeese State College gymnasium in Lake Charles But as more refugees stumble in, the grim reality begins to take hold Most of the drowned are described as oldsters and small children

It is late morning now on Friday, June 28, the day when, according to the paper civil defense plan, the President was to inform Congress of the ramifications of an 'enemy' attack on a friendly nation' in Europe In actuality, officials in Washington are getting ready to rush aid to the Louisiana-Texas region But there is one stark reminder of real European warfare in this very effort 20 tons of clothing being shipped to the disaster scene from Ellington Air Force Base in Texas had been collected originally for Hungary, it never was delivered overseas because the Communists had quelled the freedom movement

Call for Physicians

Noon approaches and medical field headquarters at Creole is a busy scene as survivors are treated for shock, fractures, and a variety of other injuries Suddenly the chatter on a civil defense radio receiver is interrupted by a loud voice reporting to some headquarters We have called for help from doctors in Texas There are no Louisiana physicians at distress areas in Cameron parish Hinsley boils inside, wishing he could set the situation straight, but the transmitter end of his set is not working One doctor quips What does that guy think we're doing here—cracking pecans?

Just about this time the telephone rings in Dr Robert Browne's office in Port Arthur, Texas It is the local radio station, they, too, have heard the erroneous report that no Louisiana doctors are on duty along the coast and that Texas physicians are needed Would Dr Browne board a shrimp trawler carrying water and supplies to Cameron? He would Moments later an announcer broadcasts the news and it is heard in Port Arthur by another surgeon, 37-year-old Thomas B Tony Sappington Jr He grabs his medical kit and hops aboard, too So do several nurses Several hours later, when news of the emergency reaches Beaumont, 33-year-old Internist Darwin D Moore, and an assistant physician in that city's tuberculosis hospital, Dr M T Danak, a native of India, climb into a Sun Oil Company plane for the trip to Cameron Obstetrician Lewis M Williams, 35, drives there from his Beaumont office

In Louisiana, meanwhile, every physician in Calcasieu and Cameron parishes is on disaster duty They include the three Cameron parish physicians who have lost their homes and clinic buildings under swirling water Not until Friday afternoon does Dr Clark learn that his wife and three children are believed drowned (Later Mrs Clark is found safe, but the children are dead—the youngest, 3½-month-old Jack, having been torn from her arms by a huge wave, two other children survive in their grandmother's home)

When Dr Clark hears the tragic news he starts to hike back through muddy waters to the debris of his home 'No sense doing that, says Sheriff Carter "All

Scenes from the disaster *Left* hat in one hand doctor calming a patient with the other *Center* debris everywhere—floats for people and for snakes *Right* the sun shines bright at a mass funeral (Photos by Bill Gabbert, Louis B King Gene Vance)

sion and the Fund Success in the implementation of these sted Guides depends in a large part upon the perform- of the liaison committees

To protect the Fund and its beneficiaries the medical so- should institute, through its liaison committee, measures to t any confirmed abuses called to its attention

A medical society and a liaison committee should not en in unilateral action in any matter which affects the rela- ups between the medical profession and the Fund without consultation with the Fund representatives

When an agreement is drawn up between a medical society he Fund, it should include a provision which would permit ortion(s) to be referred to higher levels without nullifying ntire agreement

All controversial matters arising between the UMWA Wel- and Retirement Fund and the participating physicians h cannot be reconciled at the local or state level should romptly referred to the Committee on Medical Care for strial Workers This appeal mechanism is available to any concerned

ID RESPONSIBILITIES

The Fund should keep statistical data on medical care pro- d to the beneficiaries by the physicians The Fund should ent to the liaison committee any claims such as poor medi care, overcharges and unnecessary surgery, with substan- ng evidence

The Fund should utilize the medical society liaison com- ees on medical questions relating to the operation of the ram Success in the implementation of these Suggested des depends largely upon the utilization of the liaison com- ees

Representatives of the Fund should not engage in unilat- action in any matter which affects the relationships be- en the Fund and the medical profession without prior con- tion with the liaison committee

Every physician duly licensed by the state to practice icine and surgery should be assumed at the outset to be petent in the field in which he claims to be, unless con- red otherwise by his peers

When an agreement is drawn up between a medical soci- and the Fund, it should include a provision which would nit any portion(s) to be referred to higher levels without ifying the entire agreement

All controversial matters arising between the UMWA Wel- and Retirement Fund and the participating physicians ch cannot be reconciled at the local or state level should promptly referred to the Committee on Medical Care for ustrial Workers This appeal mechanism is available to any ty concerned

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Chet Shaw, Executive Vice-President, Health News Institute New York City
John Troan, Science Editor, The Pittsburgh *Press*
John C Lee, Executive Secretary, Dade County (Florida) Medical Association
Tom Coleman, Assistant to the Vice Chancellor, University of Pittsburgh, Schools of the Health Professions

LUNCHEON, 12 30 p m, Walton Room

PUBLIC RELATIONS PROBLEM-SOLVING SESSIONS
2 15 p m -5 15 p m

Large State Societies (Four or more A M A delegates)— Room *M-10*

Chairman James A Waggener, Executive Secretary, Indiana State Medical Association
Robert L Richards, Assistant Director, Medical Society of the State of Pennsylvania
Earl R Thayer Assistant Secretary, State Medical Society of Wisconsin
Special Consultant Shirley D Smith, Executive Director, Public Relations Society of America, New York City
Special Consultant Glenn B Sanberg, Executive Director, American Society of Association Executives, Washington, D C

Small State Societies (Less than four A M A delegates)— Room M-11

Chairman Donald L Taylor, Executive Secretary, Iowa State Medical Society
Oliver E Ebel, Executive Secretary, Kansas Medical Society
Milton D Krueger, Executive Secretary, Medical Association of Georgia
Barrett A Nelson, M D, President, Kansas Medical Society

County Societies with Executive Secretaries—Room M-16

Chairman William R Ramsey, Executive Secretary, King County (Washington) Medical Society
Harry A Lehman, Executive Secretary, Jefferson County (Kentucky) Medical Society
Charles L Collum Jr, Executive Secretary, Travis County (Texas) Medical Society

County Societies Without Executive Secretaries—Room M-17

Chairman John H Burkhart, M D, Knoxville, Tenn
John F Hartman Jr, M D, Erie, Pa
Edward T Edwards, M D Vincennes, Ind

RECEPTION FOR REGISTRANTS
5 30 p m, Walton Room

Thursday, Aug 29

COFFEE HOUR, 8 30 a m to 9 30 a m, Ballroom

GRIEVANCE COMMITTEE REEVALUATION SESSION
9 30 a m, Ballroom

Chairman William J Burns, Executive Director, Michigan State Medical Society
Keith H Frankhauser, M D, Avon, Ill
Robert C Lewis Jr, M D, Glenwood Springs, Colo
Dr Harry Pandolfo, President-elect, Indianapolis Medical Society

PUBLIC RELATIONS PROBLEMS IN THE SOCIO-ECONOMIC AND LEGISLATIVE FIELDS
11 a m, Ballroom

Chairman Edwin J Holman, Staff Associate, Law Department, American Medical Association
Robert B Throckmorton, Legal Counsel, Iowa State Medical Society
William M Nebeker, M D, Salt Lake City
Edward Willenborg, Executive Secretary, Academy of Medicine of Cincinnati

LUNCHEON 12 30 p m, Walton Room

Screening of two new A M A films 'Whitehall 4-1500, and Mechanical Quackery

ADJOURNMENT

the injured are being taken back to the courthouse' So Dr Clark spends the next few days treating victims and directing emergency medical work at the courthouse After all, isn't he Cameron's only resident physician? He explains later "I figured my place was with those who were hurt I would have to put my family temporarily in the background " A deputy sheriff says The doctor was tired and had a sad look on his face He was brokenhearted and the people really appreciate what he has done "

It takes five hours for the shrimp boat carrying Drs Browne and Sappington to tie up at the Cameron jetties as the ebb of Hurricane Audrey washes sullenly back to sea Dr Browne recalls There were just us four doctors at first in the courthouse—Tony Sappington, myself, a John K Griffith Jr (39-year-old internist from Lake Charles), and a Dr White from Alexandria who had been visiting in Lake Charles and came along to help We worked by lanterns, flashlights, and candles There were tetanus and typhoid shots to give, fractures to reduce, lives to save One fellow dared me to inoculate him I said it was up to him, that he was risking his life He still refused We even had a gunshot case Tony Sappington treated an 18-year-old youth who had been wounded by a rifle bullet during an argument over whether he with a shotgun or another teenager with a rifle was better armed as a deputy sheriff to prevent looting in Cameron Both lost their deputy status and had to be evacuated We had some snakebite cases, too'

Snakes are a terrifying hazard The bayous are full of ground rattlers and water moccasins They are slithering onto debris, snapping at human refugees beside them Mrs Stephen Broussard loses three children to the tidal wave, and a fourth dies when a snake strikes as she is holding the child in the water Dr Danak, just in from Beaumont, has cause to dwell on that scene as a reminder of his native India, where countrymen on rooftops during floods would often choose a watery suicide rather than submit to the nerve-killing attacks of also-marooned kraits, which cause more deaths than any other snake in India Even more terrifying, at least in appearance, are the nutria muskrats, some weighing as much as 25 lb They bare long curved teeth when they are being cornered Several refugees are bitten by these vicious rodents

Treatment and Evacuation

Fifteen miles from the Cameron courthouse, in the water-flanked open air hospital, snakebite cases come as no surprise They had been expected in the civil defense plan Physicians left Lake Charles with 75 snakebite kits, including 36 borrowed hastily from local Boy Scouts Now cots are stretched neatly along the far end of a helicopter landing strip, supply cases serve as both medical reservoirs and tables Although the scene is primarily one of first aid and evacuation, there are some serious cases, too They are flown back to Lake Charles by oil company and Army helicopters Speed boats and army trucks are used to rush elderly victims who are afraid to ride the whirlybirds

Giant cranes from the Air Force Strategic Air Command base go into action to clear roads of debris The airfield itself is used as a disaster base Individual airmen and officers serve as stretcher bearers, as volunteers at a variety of tasks National guardsmen from Texas and Louisiana deliver 10,000 cots and blankets and are manning the "ducks " (One says "We had 65 evacuees aboard on one trip, if anybody had belched we would have capsized ") Red Cross teams move in to command posts

There seems no end to the misery, stink, and shock in Cameron Hundreds of cattle lie dead in flooded Main Street (35,000 of the animals would die in Cameron parish alone) A ragged boy sitting on the courthouse steps says "My brothers are dead and we don't know where daddy is " A fisherman rescued from the Calcasieu River mumbles that his father, pregnant wife, and two children are gone Bodies fill up the icehouse

Dr Browne of Beaumont says "I got no response from local officials when I suggested that the dead be fingerprinted for later identification Just a little organization in that courthouse would have helped a lot We doctors did the best we could but there was little readiness in Cameron itself We could see that in the boats tied up outside many wrecked homes—boats still containing life preservers which might have saved some child—little things like that' (A former Texas National Guardsman, Dr Browne is familiar with disaster As a boy in St Louis he witnessed the great Midwest tornado which killed over 400 persons in 1925, he rushed gas masks and performed surgery for victims of the Texas City holocaust in 1947, and two years ago helped organize medical help for flood victims at Orange, Texas)

Certainly no lack of organization emanates from the medical control center at Lake Charles Memorial Hospital Saturday, June 29, dawns and dusks quickly for the scores of tired but busy physicians there, in sorting areas, in nearby refugee centers, and in the relatively far-flung medical outposts Examination, treatment, and assignment at the triage section in the hospital lobby becomes a key to the medical efficiency (Established civil defense procedure had placed two experienced physicians in the lobby to assign patients to various wards and rooms) Administrator Hinsley writes in his notebook "If these thousands of hours of service by members of the Calcasieu Parish Medical Society could be evaluated it would be the outstanding contribution to survivors of Hurricane Audrey " More than 3,000 persons are treated At Memorial Hospital only one hurricane victim dies, a woman who had been a diabetic

Pathos in Patients

On Saturday Dr Clark is flown by helicopter to Lake Charles for a reunion with his wife and two surviving children Although relief for the doctors from Texas and from Calcasieu and Cameron parishes is coming in from other localities, many of them stay on serving until Sunday evening—more than three days and three nights without sleep By then the curtain of shock has lifted in many victims but the horrendous memories never can be erased At the treatment centers people are still asking, Have you any water? Before the doctor can say, yes, they add "I don't want any if someone needs it more than I do

Much of the water is being sent in thousands of half-gallon milk containers by the manager of a local Borden milk company in Lake Charles (The milk carton idea developed into standard civil defense procedure from the experience of Hurricane Diane in 1955 at Stroudsberg, Pa.) He, too, keeps working under personal stress. His father is the first patient to arrive at Lake Charles Memorial Hospital, and his mother is the first reported as drowned.

Now the bodies are decomposing quickly in the heat and humidity, and there are not enough disaster pouches to enclose them before heavy machinery can dig huge graves for mass burial. So there is a rush call for garment bags, mattress covers, even quickly sewn bed sheets.

Sunday, June 30, is the first day of assessment, although medical teams continue to give mass inoculations against typhoid and tetanus. Former U. S. Civil Defense Director Val Peterson surveys the area as President Eisenhower's personal representative. An observer at numerous flood, tornado, and other natural disaster scenes in recent years, even Peterson is aghast at this calamity. Several months ago, Dr. Joseph A. Hertell of Atlanta, Ga., medical director for the southeastern area of the American Red Cross, had admired the civil defense setup at Lake Charles. Now he is back to see how the plan is put into action. He says: "I had no idea how well organized it was until disaster struck. Assignments were never questioned. We received full cooperation. The *esprit de corps* of Calcasieu and Cameron parish physicians, and good planning by the medical society is the reason for this fine performance. In the 10 major disasters I have witnessed in the past five years this disaster operation was the best planned and executed."

Planning and Helping for Tomorrow

But execution of a civil defense plan is only part of this saga of disaster doctors. On Monday, July 1, at headquarters of parish, county, and state medical societies in scattered areas of the South, other plans get under way—plans for the medical heroes who, even in August, are continuing their spontaneous decision not to bill any of the destitute hurricane victims. One says: "We cannot gain satisfaction from the Good Samaritan deeds of our right hand if we are acting as a bill collector with our left hand."

By late July more than $5,000 is contributed by physicians to the Cameron Parish Medical Rehabilitation Fund (c/o Louisiana State Medical Society, Room 105, 1430 Tulane Ave., New Orleans 12). This and future donations will be divided by Drs. Clark, Carter, and Dix, who already have been forwarded an additional $1,500 from an established fund to help them rebuild. All three are determined to pick up where they left off in the coastal communities.

In Texas, the Jefferson County Medical Society members vote unanimously to assess themselves a total of over $1,000 for their colleagues in Cameron parish. Money is coming in, too, from Tennessee: the Nashville Academy of Medicine, the Tennessee State Medical Association, the Nashville *Journal* (appealing to its readers). There also is help from other parts of the nation. As far north as Harrisburg, Pa., *The Patriot* newspaper editorializes: "In the months ahead as Cameron rebuilds, Dr. Clark will rebuild, too. His new home may well be, as his old one was, Cameron's showplace. But it will always be only a dull patch compared to the showplace that was his life. . . . He became a shining symbol in Cameron's grave hours of need of other doctors everywhere."

In Lake Charles, application is filed for Hill-Burton law funds which could help build a 35-to-50-bed nonprofit Cameron Memorial Hospital for all three physicians of the parish; private grants are being sought as a necessary supplement. Meanwhile, the doctor trio has free office space in Memorial Hospital. Pharmaceutical firms are furnishing, at no cost, medicines used or destroyed during the hurricane, and several companies are replacing expensive x-ray equipment demolished in the tidal wave. More fortunate doctors in the two parishes are donating surplus equipment and supplies to Clark, Carter, and Dix.

Crisis Aftermath

The initial crisis of Hurricane Audrey is over now, but health and rehabilitation problems remain; there is much to be done. The Calcasieu Parish Medical Society, for example, has been trying to move in government trailers to replace mosquito-infested tents occupied by refugees. Fishermen still are netting venomous reptiles in the Gulf, rattlers and moccasins ebbed out from the bayous. (For a while, the traditionally heavy seafood menu of the area is curtailed by some residents on a report that an earring was found in the belly of a fish.) Mosquito and fly control is a problem, and so is water purification and sewage disposal in some areas.

In two weeks, on Aug. 27, the parish medical society will meet again in a Lake Charles restaurant, this time to evaluate their actions and prepare for future disasters. (One U. S. meteorologist in the area predicts "very wet" weather there until 1962.) Lessons learned in June will be put to use "next time." A special civil defense short-wave radio channel, better transportation liaison, less overlap of command, battalion aid station chests in hospitals to supplement the 200-bed unit, more nurses in the civil defense organization.

These are only sidelight notes in a postgraduate medical course that has been priceless in the bayou country. Physicians there need not recall an action of their American Medical Association House of Delegates in June of 1956 when it resolved: "Physicians of our country, individually and in associated bodies, must assume the basic responsibility of preparing for and assuming the management of mass casualties during a grave national disaster." Although that statement seems passé to the doctors in Louisiana and Texas, they also know that civil defense—disaster preparation—still is crying for meaning in many other parts of the nation. Catastrophe can strike anywhere.

Hurricane Audrey's toll is at least 518 dead in Louisiana (perhaps many more among entire transient workers' families who were washed out to sea, unidentified and unsought), 9 dead in Texas, more than 1,000 injured, and many thousands made homeless in a property damage totaling some 48 million dollars. On July 12, the make believe enemy is supposed to have hit the center of Lake Charles with one atom bomb, and the outlying Air Force base with another. But before July 12, Parish Civil Defense Director Larry W. Stephenson announces: "We are not expected to participate in the national civil defense exercise."

They have had it.

THE JOURNAL
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GUIDES FOR MEDICAL SOCIETIES AND UNITED MINE WORKERS

The House of Delegates at its Annual Meeting in New York City adopted Suggested Guides to Relationships between Medical Societies and the United Mine Workers of America Welfare and Retirement Fund. These Guides are reproduced on page 1686 of this issue of THE JOURNAL. The adoption of the Guides is another demonstration of the medical profession's efforts to provide the best possible medical care without interference with the individual doctor who, in the last analysis, is responsible for the quality and quantity of care provided. The Suggested Guides offer an opportunity for the medical profession, representing individual doctors, and the UMWA Welfare and Retirement Fund, representing the recipients of medical care, to meet and discuss the mechanisms for providing medical care in an atmosphere of understanding and cooperation. They represent the means by which differences of opinion between the several parties who have a common purpose—good medical care for the beneficiary of the Fund—may be resolved.

The American Medical Association through its Committee on Medical Care for Industrial Workers has, since the inception of the Welfare and Retirement Fund, attempted to foster harmonious relations between physicians and the Fund. It has participated in the annual conferences in the bituminous coal mine areas for this purpose. Now the House of Delegates has adopted these Suggested Guides to re-state certain basic concepts. The Guides recognize that medical services performed by physicians and paid for by the Fund inure to the benefit of the beneficiary of the Fund. It is the position of the medical profession that these medical benefits or services should be available to the beneficiary without diminution of either quality or quantity of medical care. It is obvious, therefore, and should be clearly understood by physicians and all others that the Suggested Guides are not a departure from the traditional, time-tested position of the medical profession, which insists upon free choice of physician and fee-for-service to the fullest extent possible.

The Guides delineate areas of responsibility to be assumed by the medical profession and by the Fund in this joint program to provide medical care. They suggest a mechanism for cooperation and liaison and provide a method for resolving misunderstandings. The Guides, if followed, should prevent minor yet vexing problems from assuming major or national importance. By an appeal procedure they establish, at successively higher levels, independent reviewing bodies which are designed to be independent forums having the virtue of objectivity.

As their very title implies, the Suggested Guides are not a rigid formula to be followed without deviation. They may be modified in their application as local conditions warrant, provided both parties are in accord with suggested modifications and variations. The cooperation and good working relationships which have continuously existed in some areas are ample evidence that there is a desire by the profession and the Fund to work for the best interest of the beneficiary without derogation of rights of either the doctor or the Fund. There is every reason to believe that the Guides, based on the experiences of the past, will enable all areas to achieve a common goal.

An official of the Fund has stated that the Guides were not acceptable to the Medical Service of the Fund and would not be followed.' His objections are based on the presence of certain provisions which he feels would encourage certain abuses and excesses on the part of a very small minority of physicians. This position should not be looked upon as an obstacle to the implementation of the Guides. Rather it should be treated as the expression of an opinion amenable to explanation or susceptible, if the facts alleged are true, to correction by cooperation between representatives of the medical profession and representatives of the Fund. It would be indeed unfortunate if either members of the medical profession or representatives of the Fund refused to lend their efforts, personal and collective, to implement the Suggested Guides. Personalities and prejudices must be submerged if the welfare of the individual, be he called a patient or a beneficiary, is to be served. It is the responsibility of the medical profession and the Fund to recognize and accept their obligations in order to achieve their worthy objective.

MEDICINE'S FINEST HOUR

Heroism so often is a transient thing—hailed today, tomorrow, even next year, recalled occasionally a decade or more later, then usually forgotten as more current epic feats take the limelight.

Everlasting limelight certainly was not the goal of scores of Louisiana and Texas physicians, some of them in personal grief, who in June spent sleepless nights and days caring for victims of Hurricane Audrey without thought of any kind of reward. Even today, their work for the destitute refugees is a public service compensated only by the good will of simply helping.

But while it may not matter to them whether they receive recognition, their experience matters a great deal to the medical profession and to the public at large. Until now, that experience has not been told in detail. It needs to be told—not only for its inspirational quality but, more importantly, for its value to people everywhere who someday may also be faced with community calamity.

Perhaps at no time in modern American history has civil defense planning and preparation played such a decisive role in a natural disaster as it did during that crisis along the Gulf Coast. Lives were saved, suffering was alleviated, morale was uplifted by physicians, nurses, and hundreds of other volunteers in all walks of life. Credit goes beyond civil defense planning, however. In Louisiana and Texas there developed a refinement to organization—individual improvisation born of the planning concept itself. Physicians working in the mud and wind acted well past their medical society's civil defense plan, discovering that it is not simply what authorities think and plan but, in the final analysis, what the individual physician does. For the doctor, civil defense inevitably must be seen as a personal matter.

One Louisiana physician saw it in the wind which carried his clinic building a mile and a half into a marsh. Another saw it in the drowning of his three children. Others saw it in first-aid treatment under candlelight, in the agony of long-time patients on wind-swept hospital cots, and in the depths of mass graves dug out of familiar landscape.

On page 1679 of this issue another Medicine At Work article, "Saga of the Disaster Doctors," tells in detail for the first time the heroism of not merely a few physicians, but of many in that hurricane crisis. It documents the selfless efficiency both of the medical community and of hundreds of lay individuals and groups. For the nation, that crisis reveals an epic of volunteer cooperation. For the profession, it represents medicine's finest hour.

THE PHYSICIAN NOT IN PRIVATE PRACTICE

Most physicians tend to look upon their colleagues who are not actually engaged in the private practice of medicine as a numerically small group. Furthermore, they do not usually think of these doctors as particularly involved in the policies which affect private practitioners, such as 'free choice,' "socialized medicine," 'confidential physician-patient relationship,' and the "third party in medicine." Actually, as of December 31, 1956, the American Medical Association Directory Department showed that, of the 229,876 physicians in the United States, 72,488 doctors of medicine, or 32%, had stated they were not in private practice. That is, these men indicated they were not supplying direct medical care primarily on a fee-for-service basis.

Many of the 72,488 physicians mentioned do take care of patients, however. For example, there are over 15,000 doctors in some form of government service. Some of these serve as regular commissioned officers of our armed forces or Veterans Administration, some are reserve officers temporarily on active duty in a unit of the Army, Navy, Air Force, or Public Health Service (including interns, residents, and others with full-time hospital appointments), and others are in full-time service with various federal agencies such as the Department of State and our Point-4 program or are at other civil service posts such as the Panama Canal Zone. About 25,000 physicians are serving as civilian interns and residents. The remaining 30,000 nonpracticing doctors include those administratively employed by industry, schools, health departments, hospitals, and those who claim they are retired. Interestingly enough, less than 5% of all the medical men in this country considered themselves retired.

Just how many of these medical doctors are members of their local medical societies is not known, but it should be emphasized that their participation in all medical society activities of an economic or organizational nature is important. Medical policies concerning patient care, as well as the "politics" of health, begin at the county society level, and, if all physicians can participate in some way in such activities, there may be less misunderstanding and more cooperation to the benefit of all in the future. After all, the majority of the 35,000 interns, residents, and reserve medical officers will probably enter "private practice" as soon as their present obligations are fulfilled.

One group of nonpracticing physicians extremely important to organized medicine is the full-time teachers in medical schools. These men and women have a tremendous influence in orienting future physicians toward medical policies of tomorrow. In addition much of the research that will directly affect future patient care is supervised through medical centers connected with medical schools.

If local and state medical organizations invite the participation of the nonpracticing physician, such participation is a two-way proposition. This same nonpracticing physician to obtain a voice in organized medicine should be willing to become an active, not absentee, member of his local medical society. What it really amounts to is that every doctor of medicine should be a part of, not apart from, his officially recognized medical organization.

ORGANIZATION SECTION

F J L BLASINGAME TO BE A M A GENERAL MANAGER

The Board of Trustees of the A M A has appointed Dr George F Lull, who has been Secretary-General Manager of the Association for 11 years, to the newly created position of Assistant to the President of the A M A He will continue serving as Secretary, which is an elective office At the same time, Dr F J L Blasingame of Wharton, Texas, was appointed to the position of General Manager of the American Medical Association He will take over his new duties on Jan 1, 1958

Dr Blasingame will leave his private practice in Wharton, which he has carried on in the same location for 20 years, and will move his family to Chicago, where the A M A headquarters office is located, as soon as possible Dr Blasingame, who is 50, has been active in medical affairs, at both the state and national level, for many years When the A M A House of Delegates elected him a member of the Board of Trustees in 1949 he was one of the youngest physicians ever chosen Since then, he has held many important A M A committee appointments He served as president of the Texas State Medical Association in 1955 Teaching and medical education have always been close to his heart After graduating from the University of Texas Medical School at Galveston in 1928, he spent three years as a teacher on the medical school staff Since then he has maintained a teaching affiliation with the University of Texas

Dr Blasingame has long been active in civic affairs not only in his home town but throughout Texas He is president of Blue Cross-Blue Shield Plans of Texas, he is chairman of the Board of Trustees of Wharton County Junior College, and he is also chairman of the medical advisory board of Sears, Roebuck Foundation, which encourages young doctors to create new medical facilities where they are needed

Dr Edwin S Hamilton, Kankakee, Ill, Chairman, A M A Board of Trustees, said that "the 164,000 members of the American Medical Association are fortunate in obtaining the services of Dr Blasingame He is young, highly experienced, and he is making the change at a great sacrifice to himself" Dr Hamilton, in announcing the appointment, said that Dr Blasingame is dedicated to the principles of good medical care for all of the American people He possesses all the essentials of leadership, plus knowledge, imagination and sound thinking His work on behalf of medicine through the years has shown that he has the courage and initiative to shoulder responsibility"

Dr Lull, in his new job, will relieve the President of the Association of many of the burdens of this office, which have become especially heavy in the last few years Dr Lull, who is 70, joined the A M A staff after serving 34 years in the Army His last position before retirement was deputy surgeon general of the Army

SUGGESTED GUIDES TO RELATIONSHIPS BETWEEN STATE AND COUNTY MEDICAL SOCIETIES AND THE UNITED MINE WORKERS OF AMERICA WELFARE AND RETIREMENT FUND

The House of Delegates at the 1957 New York meeting gave consideration to this subject, and a report may be found on pages 1113-1115 of the July 6 issue of THE JOURNAL *The Suggested Guides are reproduced again because of the interest in this subject* —ED

The fundamental concepts on which the recommendations are based are

1 All persons, including the beneficiaries of a third party medical program such as the UMWA Fund should have available to them good medical care and should be free to select their own physicians from among those willing and able to render such service

2 Free choice of physician and hospital by the patient should be preserved

a Every physician duly licensed by the state to practice medicine and surgery should be assumed at the outset to be competent in the field in which he claims to be, unless considered otherwise by his peers

b A physician should accept only such terms or conditions for dispensing his services as will insure his free and complete exercise of independent medical judgment and skill, insure the quality of medical care, and avoid the exploitation of his services for financial profit

c The medical profession does not concede to a third party such as UMWA Welfare and Retirement Fund in a medical care program the prerogative of passing judgment on the treatment rendered by physicians, including the necessity of hospitalization, length of stay, and the like

3 A fee-for-service method of payment for physicians should be maintained except under unusual circumstances These unusual circumstances shall be determined to exist only after a conference of the liaison committee and representatives of the Fund

4 The qualifications of physicians to be on the hospital staff and membership on the hospital staffs is to be determined solely by local hospital staffs and local governing boards of hospitals

MEDICAL SOCIETY RESPONSIBILITIES

1 The members of the medical profession have the responsibility for rendering good medical care to all people including beneficiaries of the UMWA Welfare and Retirement Fund

2 Each local medical society in light of the needs of the community, should develop a mechanism for supplying the Fund area medical administrator with the names of physicians desiring to participate in the Fund s medical care program indicating the field in which each physician wishes to practice

3 The medical society should create active liaison committees with periodic and established times for meetings Medical societies should appoint physicians on these committees who are interested in the problems and willing to devote time to them

4 The liaison committees should be established on a county regional, or state level as may be necessary Local problems should be handled locally and, if not resolved there, referred to successively higher levels until they have been resolved

5 The liaison committee should be charged with the prompt and energetic handling of any problem presented to it which has to do with relationships or dealings between the medical

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From the Committee on Medical Care for Industrial Workers of the Council on Medical Service and Council on Industrial Health profession and the Fund Success in the implementation of these Suggested Guides depends in a large part upon the performance of the liaison committees

6 To protect the Fund and its beneficiaries the medical society should institute, through its liaison committee, measures to correct any confirmed abuses called to its attention

7 A medical society and a liaison committee should not engage in unilateral action in any matter which affects the relationships between the medical profession and the Fund without prior consultation with the Fund representatives

8 When an agreement is drawn up between a medical society and the Fund, it should include a provision which would permit any portion(s) to be referred to higher levels without nullifying the entire agreement

9 All controversial matters arising between the UMWA Welfare and Retirement Fund and the participating physicians which cannot be reconciled at the local or state level should be promptly referred to the Committee on Medical Care for Industrial Workers This appeal mechanism is available to any party concerned

FUND RESPONSIBILITIES

1 The Fund should keep statistical data on medical care provided to the beneficiaries by the physicians The Fund should present to the liaison committee any claims such as poor medical care overcharges, and unnecessary surgery, with substantiating evidence

2 The Fund should utilize the medical society liaison committees on medical questions relating to the operation of the program Success in the implementation of these Suggested Guides depends largely upon the utilization of the liaison committees

3 Representatives of the Fund should not engage in unilateral action in any matter which affects the relationships between the Fund and the medical profession without prior consultation with the liaison committee

4 Every physician duly licensed by the state to practice medicine and surgery should be assumed at the outset to be competent in the field in which he claims to be, unless considered otherwise by his peers

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1957 PUBLIC RELATIONS INSTITUTE

Drake Hotel, Chicago
Aug 28 and Aug 29, 1957

The Public Relations Institute is presented by the American Medical Association as a service to state and county medical societies It is designed for representatives of these societies and their auxiliaries, for medical school public relations personnel, and for others working in the field of medical public relations

PROGRAM

Wednesday, Aug 28

REGISTRATION
8 30 a m , French Room Foyer

COFFEE HOUR, 8 30 to 9 30 a m , Ballroom

OPENING OF EXHIBITS
9 a m , French Room
Health education exhibits and public relations aids available from the American Medical Association will be on display

MEDICINE AND PUBLICITY two panel discussions
9 30 a m , Ballroom
Chairman Robert Potter, Executive Secretary, Medical Society of the County of New York

Problems of Science Writers and the Working Press in Covering Medical Stories
Charles L Hudson, M D Cleveland
Roland Berg, Medical Editor, *Look* Magazine
Thomas L Royce, M D , Chairman, Public Relations Board, Harris County (Texas) Medical Society
Robert Clark Staff Writer, Louisville *Courier-Journal*
John L Bach, Director of Press Relations, A M A

Problems Involving Release of Stories by Medical Schools and Pharmaceutical Industries
Evan A Edwards, Executive Assistant, University of Colorado Medical Center
Chet Shaw, Executive Vice President, Health News Institute, New York City
John Troan, Science Editor, The Pittsburgh *Press*
John C Lee, Executive Secretary, Dade County (Florida) Medical Association
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COFFEE HOUR, 8 30 a m to 9 30 a m , Ballroom

GRIEVANCE COMMITTEE REEVALUATION SESSION
9 30 a m , Ballroom
Chairman William J Burns, Executive Director, Michigan State Medical Society
Keith H Frankhauser, M D , Avon, Ill
Robert C Lewis Jr , M D , Glenwood Springs, Colo
Dr Harry Pandolfo, President-elect, Indianapolis Medical Society

PUBLIC RELATIONS PROBLEMS IN THE SOCIO-ECONOMIC AND LEGISLATIVE FIELDS
11 a m , Ballroom
Chairman Edwin J Holman, Staff Associate, Law Department, American Medical Association
Robert B Throckmorton, Legal Counsel, Iowa State Medical Society
William M Nebeker, M D , Salt Lake City
Edward Willenborg, Executive Secretary, Academy of Medicine of Cincinnati

LUNCHEON, 12 30 p m , Walton Room
Screening of two new A M A films ‘Whitehall 4-1500, and Mechanical Quackery

ADJOURNMENT

MEDICINE AND THE LAW

PROFESSIONAL LIABILITY

Joseph F Sadusk Jr , M D , Oakland, Calif

One of the most difficult problems presently confronting physicians is that of medical malpractice, probably more correctly termed professional liability Commencing in the 1930 s, gaining momentum during the 1940 s, and attaining new heights in the 1950 s, the problem has reached alarming proportions It exists nationwide, the only difference being that the degree of hazard varies throughout the nation In *some areas of the country, suits have been filed for* a million dollars! And judgments rendered by the courts have reached $250,000! Awards in the neighborhood of $100,000 are not particularly unusual

As a result, some insurance companies are avoiding or leaving the field of such coverage, group professional liability insurance programs have been canceled, and physicians are finding it increasingly difficult to obtain adequate and proper coverage This condition must affect the practice of medicine, the physician will lose his courage in the use of necessarily difficult and dangerous procedures in behalf of his patients if he is to become their insurer, as the present trend of professional liability would suggest

Boiled down to a few words, *we may define medical* malpractice as the failure of a physician to possess the average skill and knowledge of other physicians in like circumstances or, possessing that average skill and care, the failure to use it This has been traditionally the definition of medical malpractice, but it seems to me that during the past 10 years there has been a slow but pernicious change of this concept in the courts to compare the physician's care of a patient in the light of what may be looked upon as the very best care in a community Such a concept makes it difficult for most physicians to defend themselves in court In addition, the broadening definition of the statute of limitations the requirement for a physician to become a witness against himself by the use of a hypothetical question, the increasing application of the doctrine of *res ipsa loquitur* by the courts, and the readiness of patients to sue and the lay jury to award increasingly high judgments compound the problem

The very advances of medical science have increased the danger of injury to patients Medicine is indeed a hazardous profession, and the yearly advances in the diagnosis and treatment of disease, despite the over-all benefit to mankind, burden the physician with the danger of serious and irreparable damage to the patient in spite of his utmost diligence and care

The public has been led by the publication of magazine articles to believe that medicine has reached the stage where diagnosis and treatment are marvelous and wondrous To be sure, these advances are breath-taking, but writers seldom emphasize that these advances are not infallible and that some of them are extraordinarily hazardous When complications occur, the patient then becomes critical—particularly *if he is an unrealistic person—and may manifest* such dissatisfaction by a malpractice claim

This truth is clearly evident in a review of malpractice claims *Ninety per cent or more reveal* no evidence of malpractice, but, unfortunately, do show that a poor result was obtained—not due to the carelessness or negligence of the physician, but rather due to the fact that medicine has not reached perfection or infallibility It never will The physician cannot guarantee results

It is for this reason that I stated in my introductory sentence that the term medical malpractice should be replaced by the term professional liability This term properly reflects the point that the physician has had to assume a new occupational hazard, liability for the fate of the patient even in the absence of negligence

Now, *no one will deny that actual malpractice may* and does occur Physicians are human beings—not infallible and not always capable of perfect judgment—and when there are put into the hands of a human being new and dangerous and hazardous medicament and surgical procedures, which medicine has developed for benefit of mankind, serious harm may result from time to time Some of these untoward result may not be the fault of the physician, and some poor results may occur when the physician is not continuously and unusually alert to the course of events, or is not qualified to carry out these procedures Medicine has and is doing much along these lines *to correct such situations*

Education and Understanding

A recitation and review of all of the factors leading to malpractice claims and suits is beyond the scope of my very brief presentation today Suffice it to say however, that a solution must be found for this problem and particularly in those instances where an unrealistic patient brings claim without merit against the physician, whether due to misunderstanding, personal malice, or as a guise to avoid paying for medical services The solution is difficult and, indeed, no one can dogmatically state at this time what the proper elements *are of a satisfactory prevention program It is* obvious though, that education of the physician, the patient, and the understanding of the attorney are needed

Thanks to the Wm S Merrell Company, the film today represents one of our approaches to the education of the physician and we hope will *also lead to a*

Member Committee on Medicolegal Problems American Medical Association

Read before a luncheon honoring the American Medical Association Committee on Medicolegal Problems and previewing the film The Doctor Defendant New York, June 3 1957 better understanding of the physician s problem by the attorney The film reviews some of the factors leading to malpractice claims and will serve to educate the doctor in regard to the legal aspects of his care for the patient and we trust will also tend to prevent misunderstanding with and mishaps to the patient

That this film was produced in conjunction with the American Bar Association indicates a growing liaison between the physician and the attorney We need this We must develop such understanding between the two professions as one of the proper elements in the prevention of nonmeritorious malpractice claims One may argue that this film will serve to educate the unscrupulous attorney on how to levy more claims against the physician However, one must remember that, in order to have a malpractice suit, there must necessarily be a dissatisfied patient Despite the possible calculated risk in education of certain attorneys who make it their business to regularly process claims without merit, the production of such a film is a calculated risk that we must take in informing the physician of possible pitfalls

Above all, we must keep in mind a primary principle of medicine progress for the good of the public Medicine is dedicated to this premise, and if we proceed along such a line of philosophy and let the chips fall where they may, the over-all benefit to the public and to the physician will serve the best interests of all concerned The physician has been and will continue to be dedicated to offer the best of medical care as the years go along

On the other hand, patients must understand that the newer advances in medicine and surgery will continue to bring forth an irreducible number of risks and hazards, which they must be prepared to accept if medicine is to progress Likewise, the attorney must have a growing realization of the problems of the physician in this respect, and must carefully analyze the allegation of negligence by a patient against a physician, and should press such claims only if there is true merit to the case The so called nuisance claims and suits without merit should not be pressed

In behalf of the Committee on Medicolegal Problems of the American Medical Association, may I express our appreciation for the financial assistance of the Wm S Merrell Company in making this film possible We hope that such educational mediums will continue in production for release to the physician and the attorney

WHAT SPECIALTY SOCIETIES ARE DOING ABOUT MEDICAL PROFESSIONAL LIABILITY INSURANCE

This is the 15th in a series of articles dealing with medical professional liability An editorial (page 360) and a chronological resumé (page 364) appeared in The Journal, *Feb 2 The preceding articles in this series have been published weekly in* The Journal *from Feb 9, 1957, to April 6, and since then intermittently*—Ed

One phase of the Law Department s study of medical professional liability has involved the distribution of a questionnaire to 12 national medical societies Although they cooperate with, they are not constituent or component societies of, the A M A The questionnaire was designed to ascertain whether these societies have recommended a certain type of professional liability insurance coverage to their membership or have ever considered doing so Six of them replied that they are recommending or have endorsed such insurance Three others stated that they considered making such insurance available to their membership but have not done so for various reasons, including inability to work out a practicable program, no desire by the membership for such insurance, and the fear of jeopardizing the society s tax status

The information received from the 12 national societies concerning their medical professional liability insurance programs is shown in the table

In a previous article in this series (The Journal, June 1, page 582) it was pointed out that 13 state societies offered group' professional liability insurance to their membership and that 2 state societies recommended two or more approved policies to their membership Combining this information with the information received from the national medical societies, it appears that at least 21 state and national societies recommend or endorse some particular form of medical professional liability insurance for their membership

Resume of Information Received from National Medical Societies

Medical Society	Professional Liability Insurance Recommended or Endorsed	Insurance Carrier	Years Insurance Has Been Offered or Endorsed	Considered Professional Liability Insurance Program
American Academy of General Practice	No			Yes
American Academy of Obstetrics and Gynecology	No			Yes
American Academy of Orthopaedic Surgeons	No			No
American Academy of Pediatrics	No			Yes
American College of Physicians	Yes	Lloyd s of London and British underwriters	3	
American College of Radiology	No*			No*
American College of Surgeons	Yes	Michigan Mutual Liability Company	2	
American Society of Anesthesiologists Inc	Yes	Interstate Fire & Casualty Co	3	
College of American Pathologists	Yes	Lloyd s of London and other British companies	2	
International College of Surgeons	Yes	Lloyd s of London and other British companies	1	
National Medical Association	Yes	Not stated	2	
Southern Medical Association	No			No

* The American College of Radiology sponsored professional liability insurance for its members from January 1946 until May 1953 with St Paul Mercury Indemnity Co

MEDICAL NEWS

CALIFORNIA

Pediatrics Project Grant—A grant of $86,700 from the Rosenberg Foundation of San Francisco to the Stanford Medical Center Fund, which will underwrite the establishment of a model community pediatrics program as part of the proposed medical center, has been announced The child health program, proposed by Dr Robert H Alway, head, pediatrics department and acting dean of the Medical School, will keep youngsters with nonacute ills from being hospitalized Instead, it will offer pediatric care in outpatient clinics, in the offices of private physicians, and in clinics The joint pediatrics facilities in the combined Palo Alto-Stanford hospital and educational and research facilities in the field of pediatrics and the willingness of pediatricians to construct joint facilities with the Medical School, will contribute to this objective, Dr Alway said The program will also coordinate community youth and service organizations such as the Stanford Convalescent Home and the Mid-Peninsula Child Health Council A program director, to be appointed in January, 1958, will undertake a study of other pediatric centers throughout the nation The Rosenberg grant will underwrite the expenses for the first three pilot years of the program, after which other support will be necessary Headquarters of the child care program will be in existing medical school buildings on campus, until the new pediatrics department in the new medical center is completed in 1959

DISTRICT OF COLUMBIA

Appoint Director of Medical Education—Dr Richard H Kosterlitz has been appointed director of medical education for the Washington Hospital Center, the new 800-bed air-conditioned hospital soon to be completed on 47 acres of the Soldiers Home tract in Washington, D C Funds for this appointment were made available by the Ford Foundation's Hospital Program which provides for the extension and improvement of the hospital s education program

Dr Kosterlitz will devote his time to teaching, developing and coordinating training programs for interns and residents, as well as a scientific program for the attending staff Dr Kosterlitz formerly served on the staffs of Cook County and Mt Sinai Hospitals in Chicago

Appoint Medical School Dean—Dr John L Parks will succeed Dr Walter A Bloedorn as dean of George Washington University School of Medicine, Sept 1 Dr Parks is presently professor of obstetrics and gynecology Dr Parks joined the medical faculty of the School of Medicine in 1939, he became head of the university department of obstetrics and gynecology hospital in 1944 He is a director of the American Board of Obstetrics and Gynecology, treasurer of the American Gynecological Society, member of the Board of Governors of the American College of Surgeons, former vice-president (1956) of the American College of Obstetricians, a member of the executive committee of the District of Columbia General Hospital, consultant in obstetrics to Walter Reed Army Hospital and Children's Bureau, and a member of the Board of Trustees of the House of Mercy

FLORIDA

Three in Family Graduate—Dr Carl M Dumbauld, a retired navy captain, received his Ph D in pharmacology at the recent commencement at the University of Florida His two children also received degrees His son, John, was awarded a bachelor degree in psychology, biology, and chemistry, and his daughter, Joan, received a bachelor of arts degree in English A veteran of 28 years in the Navy as a medical officer, Dr Dumbauld moved to Florida when he retired Here he took courses to brush up for the state board examinations, then decided to continue working for a degree in pharmacology Presently he is working as a "surveyor' with the Joint Commission on Accreditation of Hospitals

GEORGIA

Personal—Appointment of Dr Alfred M Bennett as medical associate of the American Heart Association in the area of rheumatic fever and congenital heart disease has been announced Dr Bennett has been associate in medicine, department of medicine, Emory University Medical School, Atlanta His new duties will involve liaison with the American Heart Association's Council on Rheumatic Fever and Congenital Heart Disease

Appoint Chief of Anesthesiology—Dr William H Galvin assistant professor of surgery, Emory University School of Medicine, Atlanta, and director of anesthesia at Emory hospital, has been named to the new administrative post of chief of anesthesiology in the Medical School In his new position Dr Galvin will serve as a section chief in the department of surgery and will direct patient care, teaching and research in anesthesia in the Medical School and at Grady Hospital The expanded hospital program will include addition of two full-time anesthetists and establishment of a resident training program Prior to Dr Galvin's appointment, anesthesia service at Grady was on a 'voluntary basis He was formerly director of anesthesia at North County Community Hospital, Glen Cove, N Y During World War II he was chief of anesthesia at Ashford General Hospital, White Sulphur Springs

Grant to Poliomyelitis Center—A grant of $66,158 has been made by the National Foundation for Infantile Paralysis to support the work of the Poliomyelitis Respiratory and Rehabilitation Center at the Medical College of Georgia, Augusta, from July 1, 1957, through June 30, 1958 The center, one of 15 in the

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Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health Programs should be received at least three weeks before the date of meeting

United States, provides facilities for the study and treatment of children and adults from throughout the South who have become severely paralyzed or developed breathing difficulties from poliomyelitis Efforts at the center are directed toward the development of better methods of care and rehabilitation of the acutely handicapped person, and the teaching of such techniques to physicians, medical students and nurses in the Southeast As an integral part of the Medical College, the center has the benefit of the facilities of the new Eugene Talmadge Memorial Hospital, as well as the consultation services of the entire Medical College faculty

ILLINOIS

Society News—The following officers were recently elected by the Illinois Society of Anesthesiologists president, Dr James A Felts, Marion, president-elect, Dr Huberta Livingstone, Chicago, vice-president, Dr Raymond Rose, Western Springs, secretary, Dr Clifford A Baldwin, Evanston, and treasurer, Dr Morris J Finer, La Grange Park

Chicago

Institute Offers Prize—The Institute of Medicine of Chicago is offering an annual prize of $300 for "the most meritorious investigation in medicine or in the specialties of medicine " The investigation may be also in the fundamental sciences provided the work has a definite bearing on some medical problem Competition for 1957 is open to graduates of Chicago medical schools who completed their internship or one year of laboratory work within a period of five years prior to Jan 1 excluding their terms of service in the Armed Forces Manuscripts must be submitted to the Secretary of the Institute of Medicine of Chicago, 86 E Randolph St, Chicago 1, not later than Dec 31 The manuscript of the prize paper, as submitted, is to become the property of the institute The prize winner may be invited by the board of governors of the institute to present his paper at a meeting of the institute If no paper submitted is deemed worthy of the prize, the award may be withheld at the discretion of the board of governors

NEW YORK

Clinic for Childhood Kidney Disorders—Long Island's first clinic for childhood nephrosis, nephritis, and allied kidney disorders, recently opened at the North Shore Hospital, Manhasset, is now in full operation offering free service to the patients of Nassau County physicians Complete diagnostic work-ups can now be handled and full reports are sent to the physicians The new clinic is supported by the Nephrosis Foundation of New York which has made an initial grant on advice of its medical advisory board and the suggestion of the Nassau County Council of the foundation Physicians may refer their own private patients suffering from nephrosis for consultations and periodic follow-up examinations as well as diagnostic tests The service is without fee to the patient The clinic is under the direction of Dr Harold Goldstein

Eye Injuries in Industry—There were 1,897 cases involving compensation benefits of eye injury closed in 1955 according to a recent report from New York State A survey of industrial eye injuries in the state from 1950 through 1955 showed that cuts, punctures, and lacerations of the eye accounted for almost half of the average of 2,100 eye injuries suffered each year during that period Of the remaining cases, two of every five were caused by burns, including chemical burns, and foreign bodies in the eye Occupational diseases, the result of occupational activity or exposure to injurious substances, usually over a period of time, accounted for less than 1% of all compensated eye injuries Of these occupational eye injuries, four out of five cases were conjunctivitis

GUAM

Establish Society of Practitioners—On May 24 the articles of association of the Medical Society of Private Practitioners of Guam were adopted The purpose of the society is to organize 'the physicians in private practice in the territory of Guam for the purpose of promoting and encouraging the practice of the healing arts according to the rules and regulations of the American Medical Association " Names of the board of directors are Dr August John Dargevics, Dr Gabriel Masry, and Dr Edward Falk Membership is divided into three classes Active members, those who are actively engaged in private practice, honorary members, physicians not in active practice but who are honored by emeritus positions, and associate members, those who are not engaged in active practice but who have an association with one or more active members of this association or who is duly licensed to practice medicine in Guam The official post office address of the association is P O Box 924, Agana, Guam

GENERAL

Poliomyelitis Vaccine Appropriation—Over 99% of the $53 6 million appropriated by Congress to help provide poliomyelitis vaccine for children has now been paid to states and territories, Dr Leroy E Burney, surgeon general of the Public Health Service, has reported Legislation was requested by President Eisenhower to help assure that children would not be denied vaccine because of lack of funds. It was enacted on Aug 12, 1955 Federal grants were made to the states for the purchase of vaccine and the administration of vaccination programs for children under 20 and pregnant women The law expired June 30 Four states (Arkansas, Indiana, Nebraska, and Wyoming) have indicated that they will not use all of their federal allotment The balance of unspent allotments for these states, about $400,000, will revert to the U S Treasury It is estimated that by the time all of the vaccine now ordered has been used, about 29 million children and pregnant women (45% of the population in these groups) will have received a total of over 75 million injections through the federally financed program

Symposium on Gas Chromatography—The Instrument Society of America will hold its first three-day International Symposium on Gas Chromatography at the

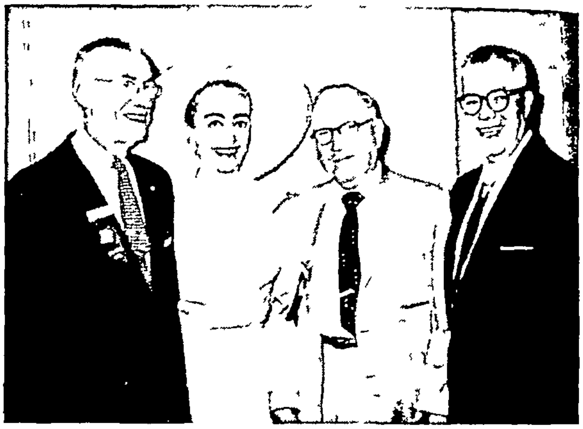
Kellog Center for Continuing Education, East Lansing, Mich , Aug 28-30 Program sessions will consist of five one-hour papers, each on a specific phase of gas chromatography, followed by related 10-to-15-minute contributed papers Sessions will only be conducted during the morning and evenings, leaving afternoons for use of Michigan State University recreational facilities Major papers will be delivered by Marcel Golay, of Norwalk, Conn , Courtenay Phillips, Merton College, Oxford, England, and Beull O Ayers, Phillips Petroleum Co , Bertlesville, Okla Areas to be covered include theoretical considerations in gas chromatography, gas chromatography for the laboratory, gas chromatography as a preparative tool, new horizons in gas chromatography, and gas chromatography instrumentation for continuous automatic analysis For information write H S Kindler, Director of Technical Programs, Instrument Society of America, 313 Sixth Ave , Pittsburgh 22, Pa

Conference on Religion and Medicine—The Rohlf Memorial Clinic Foundation and Wartburg College, Waverly, Iowa, are sponsoring a conference on religion and medicine to be presented Aug 28-29 at Wartburg College Keynote speaker will be Dr Russell L Dicks, professor of pastoral care, Duke University Divinity School, Durham, N C Three workshops are featured pastoral care and the hospital's concern, specific religious involvements in health, and medical and pastoral personnel working together A panel discussion to be held Aug 29 will cover three main topics what the patient should be told, spiritual care of the dying patient and his loved ones, and emotional-spiritual support for the chronically ill patient Speakers include Dr William B Bean, M D , professor of internal medicine and Dr Robert T Tidrick, M D , professor of surgery, State University of Iowa, College of Medicine, Iowa City, who will discuss "Medicine and Religion—A Physician's Viewpoint' and a "Physician Looks at the Minister,' respectively Registration fee is $5 00 For information write the Conference on Religion and Medicine, Wartburg College, Waverly, Iowa

Fellowships in Research—Sept 1 and Dec 1 are the current deadlines for applications to the National Foundation for Infantile Paralysis for postdoctoral fellowships in research, academic medicine or in the clinical fields of psychiatry, rehabilitation, orthopedics, the management of poliomyelitis, and preventive medicine Applications for fellowships in the medical associate fields of social science, health education, physical therapy teaching, and occupational therapy teaching, should also be filed by these dates A spring date of March 1 is also provided Financial support of the fellow varies according to his previous education, his professional experience, marital status, and number of dependents For a full academic program, tuition and fees are allowed, for other programs, a sum not to exceed $1,250 per year (includes tuition) is provided

All awards are made upon recommendation of the appropriate National Foundation Fellowship Committee U S citizenship is required, but those who have filed a petition for naturalization will be considered For information write the Division of Professional Education, National Foundation for Infantile Paralysis, 301 E 42nd St , New York 17, N Y

At the New York Meeting—Alfred N Steele, chairman of the board of the Pepsi-Cola Company and a director of the U S Committee of the World Medical Association, and his wife, film actress Joan Crawford, were welcomed to the AMA's annual meeting in New York City by Dr David B Allman, AMA president, and Dr Dwight H Murray, immediate past-president All were present at a reception of the World Medical Association in the Waldorf–Astoria Hotel



Dr David B Allman, Mrs Alfred N Steele (Joan Crawford), Dr Dwight H Murray, and Alfred N Steele (left to right)

Influenza at Boy Scout Jamboree—The U S Public Health Service Morbidity and Mortality Weekly Report of July 26 contains reports from several state health departments of outbreaks of influenza and among them is the following (abbreviated) report concerning an influenza-like illness that occurred among Boy Scouts attending the recent Jamboree at Valley Forge

Dr W D Schrack, Pennsylvania Department of Health, reports that an influenza-like illness occurred among Boy Scouts assembled for the Jamboree at Valley Forge The disease first occurred en route among three contingents totaling about 1,000 boys from California and one contingent of 40 from Louisiana Subsequent cases of an influenza-like illness developed in most of the 38 sections of the Jamboree either as sporadic or a clustering of cases in one or more troops Such clusterings were seen among troops from South Dakota, Virginia, Colorado, New York, and Puerto Rico Approximately 600 Boy Scouts and leaders with respiratory illness were observed or cared for in facilities provided by the U S Army Many boys with minor illnesses were cared for in sectional facilities Five hemagglutinating agents were obtained from throat washing of six persons in the epidemic All of these isolates were identified at Walter Reed Army Institute of Research as similar to Far East strains of influenza virus Four were from Boy Scouts and one was from a Scout Master One of the five identified viruses came from a Scout from the San Francisco area and four were from Scouts from the Los Angeles region

Prevalence of Poliomyelitis —According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States, its territories and possessions in the weeks ended as indicated

Area	July 13 1957		July 14 1956
	Paralytic Type	Total	Total
New England States			
Maine			1
New Hampshire			
Vermont			
Massachusetts			3
Rhode Island			
Connecticut		2	2
Middle Atlantic States			
New York	1	4	18
New Jersey	1	1	1
Pennsylvania			2
East North Central States			
Ohio	1	8	14
Indiana			4
Illinois	2	7	104
Michigan	1	3	12
Wisconsin		7	6
West North Central States			
Minnesota			3
Iowa	1	2	10
Missouri	1	2	9
North Dakota			
South Dakota			
Nebraska		1	3
Kansas			12
South Atlantic States			
Delaware			1
Maryland			
District of Columbia			
Virginia	4	7	11
West Virginia		1	4
North Carolina		7	6
South Carolina	1	9	2
Georgia	2	4	7
Florida	3	14	8
East South Central States			
Kentucky	4	5	3
Tennessee	1	7	5
Alabama			1
Mississippi		4	4
West South Central States			
Arkansas		3	4
Louisiana		2	26
Oklahoma	1	5	9
Texas	19	38	60
Mountain States			
Montana			1
Idaho		1	7
Wyoming			
Colorado			1
New Mexico		3	
Arizona	1	2	3
Utah			4
Nevada		1	
Pacific States			
Washington			4
Oregon	1	1	2
California	11	35	59
Territories and Possessions			
Alaska			
Hawaii			
Puerto Rico			1
Total	56	186	437

Society News —At a recent meeting of the **Great Northern Railway Surgeons' Association** the following officers were elected Dr Burton C Ford, Marshall, Minn, president, Dr Everett B Coulter, Spokane, Wash, first vice-president, Dr Harry D Benwell, Grand Forks, N D, second vice-president, Dr Robert D Harper, Sidney, Mont, third vice-president, and Dr Ernest R Anderson, Minneapolis, secretary-treasurer —The following officers of the **National Tuberculosis Association** were recently elected William M Morgan, Ph D, Alliance, Ohio, president, Dr Mario M Fischer, Duluth, Minn, president-elect, Miss Marion H Douglas, Hartford, Conn, and Dr Oscar A Sander, Milwaukee, Wis, vice-presidents, Mrs Wallace B White, Brooklyn, secretary —At the 82nd annual meeting of the **American Neurological Association** the following officers were elected president, Dr Israel S Wechsler, president-elect, Dr Bernard J Alpers, first vice-president, Dr Russell N DeJong, second vice-president, Dr Bronson S Ray, secretary-treasurer, Dr Charles Rupp, and assistant secretary, Dr William F Caveness The 83rd annual meeting of the association will be held at the Claridge Hotel, Atlantic City, June 16-18, 1958 —At the fourth annual meeting of the **Society of Nuclear Medicine** the following officers were elected president, Dr Marshall Brucer, Oak Ridge, Tenn, president-elect, Dr Henry L Jaffe, Los Angeles, vice-president, Dr Franz Bauer, Los Angeles, vice-president-elect, Dr Dwight E Clark, Chicago, and treasurer, Dr Lindon Seed, Chicago The next meeting will be held June 19-21 in the Beverly Hilton Hotel in Los Angeles —Officers for the **United States-Mexico Border Public Health Association** for 1957-1958 are president, Dr Malcolm H Merrill, president-elect, Alberto Ortiz Irigoyen, Mexico City, D F, vice-presidents, Dr Belle Dale Poole, and Dr Hector Torres, Mexicali, Baja California, secretary, Dr Sidney B Clark, El Paso, Texas The next meeting will be held in Hermosillo, Sonora, Mexico, in April, 1958 —The following officers of the **American Broncho Esophagological Association** were elected for the term of 1957-1958 president, Dr Walter Hoover, Boston, vice-president, Dr Walter P Work, San Francisco, treasurer, Dr Verling K Hart, Charlotte, N C, secretary, Dr F Johnson Putney, Philadelphia, and editor, Dr Francis W Davison, Danville, Pa The next annual meeting will be held at the Mark Hopkins Hotel, San Francisco, on the afternoons of May 21-23, 1958

FOREIGN

Aviation Medicine Congress —The second European Congress of Aviation Medicine will be held in Stockholm, Sept 16-19, under the presidency of Prof E Hohwu Christensen The scientific program will include reports on current developments in gravitational stress, standardization of tolerance tests in human centrifuges, decompression sickness and explosive decompression, and trends in engineering psychology and psychophysiology in aviation medicine Visits will be made to a Swedish Air Wing, the Department of Aviation Medicine at Karolinska Institute, Stockholm, and the Aeromedical Laboratory, Uppsala Dr Arne Fryholm is chairman of the executive committee of the meeting, and Dr Olle Hook is secretary-general Information may be obtained from Dr Olle Hook, Flygvapnet, Stockholm 80, Sweden

Congress of Orthopedic Surgeons —The International Society of Orthopedic Surgery and Traumatology will hold its seventh congress Sept 16-21 in Barcelona, Spain All sessions will take place at the Palacio de Proyeccion of Montjuich The program features the following topics influence of growth on the sequelae on bone and joint injuries and the Treatment of Flail Limbs Speakers from France, Great Britain, Germany, Spain, Italy, and the United States will make presentations Open discussions will follow the reports Three symposiums are scheduled giant-cell tumors and their treatment, the surgical treatment of osteoarthritis of the hip, and causes and prevention of congenital malformations of spine and limbs Films will be shown each afternoon except for Sept 19, which will be kept free for the bull fight Other entertainment includes a visit to the Barrio Gotico and a folkloristic fiesta to be held Sept 16 An excursion to Montserrat will be held Sept 21 For information write the Secretariat-Général, 34, Rue Montoyer, Bruxelles, Belgique

Psychiatric Congress in Zurich —The second International Congress for Psychiatry will be held Sept 1-7 in Zurich, Switzerland Official headquarters will be the Swiss Federal Institute of Technology Theme of the Congress is "Present Status of Our Knowledge About the Group of Schizophrenias ' Official languages are German, French, English, Spanish, and Italian About 75 papers will be presented at the general sessions and three symposiums are featured social psychiatry of schizophrenia, forensic problems related to schizophrenia, and the paranoid syndrome from an anthropological point of view Individual symposiums, not arranged by the organizing committee, will also be held Open discussions and small discussion groups are planned Fee for active participants is 100 Swiss francs Film presentations, scientific exhibitions, and a nonscientific collection of drawings in the Swiss Federal Institute of Technology have been arranged Social events include a reception Sept 1, a lake trip Sept 3, and a public dinner Sept 4 A special ladies' program has also been arranged For information write professor J Wyrsch, Stans (Lucern) Switzerland

CORRECTIONS

Dr Brown's Appointment —In the July 6 issue of The Journal, page 1129, the Medical News section, Dr George E Brown was listed as being director of physical education at the Christ Hospital Dr Brown has written saying, 'My position is director of Medical Education, in charge of postgraduate training '

New York State Medical Election —In the June 29 issue of The Journal, page 992, the Medical News section, the elected officers for the Medical Society of the State of New York were given incorrectly Dr W P Anderton, secretary, has written, saying, Dr Leo E Gibson, of Syracuse, was chosen president-elect and will serve for one year after which he will become president, succeeding Dr Thurman B Givan, of Brooklyn, who was installed as president Dr Givan succeeds Dr James Greenough, of Oneonta '

EXAMINATIONS AND LICENSURE

NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners *Part I* Various Centers, Sept 3-4 Sec, Dr John B Hubbard, 133 South 36th St Philadelphia 4

MEDICAL SPECIALTY BOARDS

American Board of Anesthesiology *Oral* Washington Oct 28-Nov 1 Sec, Dr Curtiss B Hickcox, 80 Seymour St, Hartford 15

American Board of Dermatology *Oral* Baltimore, Oct 11 13 Final date for filing application was April 1 Sec, Dr Beatrice Maher Kesten, One Haven Ave, New York 32

American Board of Internal Medicine *Written* Oct 21 *Oral* Los Angeles, Sept 11-14 Final date for filing applications was Feb 1 Exec Sec, Dr W A Werrell, 1 West Main St, Madison 3, Wis

American Board of Neurological Surgery Examination given twice annually, in the spring and fall In order to be eligible a candidate must have his application filed at least six months before the examination time Sec Dr Leonard T Furlow, Washington University School of Medicine, St Louis 10

American Board of Obstetrics and Gynecology *Part I* Chicago, Jan 2 *Part II* Chicago, May 7-17 Final date for filing application is September 1 Sec, Dr Robert L Faulkner, 2105 Adelbert Road, Cleveland 6

American Board of Ophthalmology *Oral* Chicago, Oct 7-11 *Written* January 1958 Final date for filing application was July 1 Sec, Dr Merrill J King, Box 236, Cape Cottage Branch, Portland 9, Maine

American Board of Orthopaedic Surgery *Part II* New York City, Jan 29-31, 1958 Final date for filing application is August 15 Sec, Dr Sam W Banks, 116 South Michigan Avenue, Chicago 3

American Board of Otolarngology Chicago, Oct 7 11 Final date for filing application was in April Sec, Dr Dean M Lierle, University Hospitals, Iowa City

American Board of Pathology *Oral and Written Pathologic Anatomy and Clinical Pathology* New Orleans, Sept 26-28 Final date for filing application is August 15 Sec, Dr Edward B Smith, Indiana University Medical Center, Indianapolis 7

American Board of Plastic Surgery *Oral and Written Examination* San Francisco, Oct 31-Nov 2 Final date for filing case reports was July 1 Corresponding Sec, Miss Estelle E Hillerich, 4647 Pershing Ave, St Louis 8

American Board of Proctology *Oral and Written Parts I and II* September Sec Dr Stuart T Ross, 520 Franklin Ave, Garden City, N Y

American Board of Psychiatry and Neurology New York Dec 16-17 San Francisco, March 17-18 Sec, Dr David A Boyd, Jr, 102-110 Second Ave S W, Rochester, Minn

American Board of Radiology Washington, Sept 23 28 Final date for filing application was June 1 Chicago, May 20-24 Final date for filing application is Jan 1, 1958 Sec, Dr H Dabney Kerr, Kahler Hotel Bldg, Rochester Minn

American Board of Surgery *Part II* Buffalo, Sept 23 24 New Haven, Oct 21-23, Indianapolis Nov 18 19, Cincinnati, Dec 16-17, New Orleans, Jan 13 14, Durham, N Car, Feb *10-11* Baltimore, March *10-11* Chicago, May 12 13, Los Angeles, June 16-17 and Portland, Oregon, June 20-21 Sec, Dr John B Flick, 225 So 15th St, Philadelphia 2

American Board of Urology *Written examination* Various cities throughout the country *Pathology and Oral Clinical* February 1958 Location not decided Exec Secretary, Mrs Ruby L Griggs 30 Westwood Road, Minneapolis 16

Board of Thoracic Surgery *Written* Various centers throughout the country, Sept 6, and the closing date for registration was July 1, 1957 Sec, Dr William H Tuttle, 1151 Taylor Ave, Detroit 2

DEATHS

Falisi, James Vincent, Colonel, U S Army, retired, El Paso, Texas, born in Lexington, Ky, Feb 2, 1885, Louisville and Hospital Medical College, Louisville, Ky, 1908, specialist certified by the American Board of Pathology, fellow of the American College of Physicians, member of the College of American Pathologists, service member of the American Medical Association, assistant professor of surgery, University of Arkansas School of Medicine in Little Rock until 1917 when he entered the medical corps of the regular Army, served as chief of laboratory service at Fitzsimons Army Hospital, Denver, Walter Reed Army Hospital in Washington, D C, and the Army-Navy Hospital at Hot Springs, Ark, served as commanding officer of the Philippine Department, the IV Corps Area, and the 7th Service Command Laboratories, retired Oct 31, 1947, died in the William Beaumont Army Hospital April 24, aged 72, of pulmonary emphysema

Frocht, Maurice ⊕ New York City born in Wengraff Poland, June 15, 1891, University of Michigan Medical School, Ann Arbor 1925, specialist certified by the American Board of Psychiatry and Neurology, member of the American Psychiatric Association and the Association for Research in Nervous and Mental Diseases, fellow of the New York Academy of Medicine, veteran of World War I, civilian psychiatrist on the Induction Board during World War II, and consulting psychiatrist to the Bronx District Attorney's office, associate attending neurologist of the Neurological Institute of the Columbia-Presbyterian Medical Center and associate in neurology at Columbia University College of Physicians and Surgeons until his retirement in 1956, consulting neuropsychiatrist at Lenox Hill Hospital, died May 15, aged 65, of coronary thrombosis

Flinn, James Michael ⊕ Helena, Mont, born in Helena Nov 18, 1891, St Louis University School of Medicine, 1921, member of the American Academy of General Practice, president of the Public Health League, past-president of the Lewis and Clark County Medical Society and the Montana State Medical Association, served as a consultant to the state department of public welfare, as Montana chairman of the advisory committee to the Selective Service System for many years, and as captain in the medical corps of the 163rd infantry, Montana National Guard, college physician for Carroll College, on the staffs of St John's and St Peter's hospitals, died in Great Falls May 6, aged 65, as the result of a fall down a flight of steps at the home of a patient

Dollar, Dougal MacGregor ⊕ Louisville, Ky, born in Lee, Mass, Oct 23, 1892, University of Louisville School of Medicine, 1933, professor of anesthesiology at his alma mater, where in 1954 an annual lectureship named for him was set up by the Louisville Chapter of Phi Chi medical fraternity, to commemorate his years of service, in 1940 an annex built to the Phi Chi fraternity house was named in his honor, Dougal M Dollar Hall, secretary-treasurer of the Southern Association of Anesthetists, associated with Waverly Hills Sanatorium, St Joseph Infirmary, Norton Memorial Infirmary, Louisville General and Children's hospitals, and Kentucky Baptist Hospital, where he died May 4, aged 64

Talley, Arthur Thurman ⊕ Kerrville, Texas, born in 1888, Memphis (Tenn) Hospital Medical College, 1910, Tulane University of Louisiana School of Medicine, New Orleans, 1914, fellow of the American College of Surgeons, served on the faculty of Baylor University College of Medicine, past-president of the Harris County Medical Society, formerly practiced in Houston, where he served on the staffs of Methodist, Jefferson Davis, and St Joseph's hospitals, for many years associated with the Memorial Hospital in Houston, where he was president of the staff in 1936, on the staff of the Sid Peterson Memorial Hospital, died May 11, aged 68, of coronary occlusion

Diefendorf, Burke ⊕ Glens Falls, N Y, Albany (N Y) Medical College, 1913, specialist certified by the American Board of Preventive Medicine, past-president of the Columbia County Medical Society and the Warren County Medical Society, fellow of the American Public Health Association, for many years district state health officer, including the counties of Warren, Washington, and Saratoga, consultant, Glens Falls (N Y) Hospital and the Saratoga Hospital in Saratoga Springs, died in the Roswell Park Memorial Institute, Buffalo, May 5, aged 70, of carcinoma of the colon with metastases

Risser, Edward Daniel ⊕ Pasadena, Calif, born in Des Moines, Iowa, March 26, 1891, State University of Iowa College of Medicine, Iowa City, 1918, formerly practiced in Winona, Minn, specialist certified by the American Board of Otolaryngology, member of the American Academy of Ophthalmology and Otolaryngology, at one time vice-president of the Minnesota Academy of Ophthalmology and Otolaryngology, associated with St Luke and Alta Vista hospitals, and the Collis P and Howard Huntington Memorial Hospital, where he died May 1, aged 66, of coronary thrombosis

Abbruzzi, Anthony Joseph ⊕ Upper Darby, Pa, born in Philadelphia Dec 17, 1912, Temple University School of Medicine, Philadelphia, 1937, specialist certified by the American Board of Ophthalmology, ophthalmologist for the American Federation of Labor, associated with Thomas M Fitzgerald Mercy Hospital in Darby, Misericordia and Presbyterian hospitals, and St Luke's and Children's Medical Center in Philadelphia, died in the Temple University Hospital, Philadelphia, May 22, aged 44, of migrating thrombophlebitis and metastatic papillary carcinoma of the bladder

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⊕ Indicates Member of the American Medical Association

Gordon, William Henry ⊕ Detroit; born in Findlay, Ohio, Nov. 16, 1890; University of Michigan Medical School, Ann Arbor, 1916; specialist certified by the American Board of Internal Medicine; member of the American College of Cardiology, American Trudeau Society, and the Endocrine Society; fellow of the American College of Physicians; during World War I was awarded the Purple Heart; veteran of World War II; associated with Sinai, Woman's and Herman Kiefer hospitals, and the Harper Hospital, where he died May 5, aged 66, of arteriosclerotic heart disease and hypertension.

Ehrlich, Simon D., Hollywood, Fla.; Cornell University Medical College, New York City, 1907; specialist certified by the American Board of Anesthesiology; member of the Medical Society of the State of New York and the American Society of Anesthesiologists, of which he was a founder and president; an associate member of the American Medical Association; practiced in New York City, where he was on the staffs of the Beth Israel Hospital, Mount Sinai Hospital, and Hospital for Joint Diseases; died May 7, aged 71, of congestive heart failure and coronary thrombosis.

Fredricks, Merriam Gerard ⊕ Duluth, Minn.; University of Minnesota Medical School, Minneapolis, 1940; specialist certified by the American Board of Dermatology and Syphilology; member of the American Academy of Dermatology and Syphilology; past-president of the Minnesota Dermatological Society; past chief of staff, Miller Memorial Hospital; member of the staffs of St. Luke's Hospital and St. Mary's Hospital, where he died May 1, aged 44, of cerebral hemorrhage, thrombocytopenic purpura, and acute myeloid leukemia.

Browne, William Claiborne, Dallas, Texas; University of Nashville (Tenn.) Medical Department, 1906; veteran of World War I; served on the staffs of Baylor University, Methodist, Parkland Memorial, and Gaston hospitals; died May 15, aged 83, of a heart attack.

Daley, William John, Buffalo; University of Buffalo School of Medicine, 1923; veteran of World War II; served on the staffs of the Buffalo General Hospital and Mercy Hospital, where he died April 24, aged 59.

Delaney, P. Arthur, Watervliet, Mich.; Rush Medical College, Chicago, 1928; died in the Mercy Hospital, Benton Harbor, May 21, aged 63.

Dennison, Albert Eugene ⊕ Oak Park, Ill.; Rush Medical College, Chicago, 1895; member of the staff of the West Suburban Hospital, where he died June 7, aged 87, of adenocarcinoma of the colon with metastasis to the liver.

Desaulniers, George Edmund Dearden ⊕ Lewiston, Maine; McGill University Faculty of Medicine, Montreal, Que., Canada, 1918; associated with St. Mary's General Hospital, where he was past-president of the medical staff and where he died April 20, aged 72, of hepatorenal syndrome and biliary cirrhosis.

Devereux, Richard Leo ⊕ Knoxville, Iowa; Bennett Medical College, Chicago, 1915; veteran of World War I; formerly practiced in Sioux City, where he was police surgeon, and on the staffs of the Lutheran and St. Vincent's hospitals; while in Tahlequah, Okla., was associated with the Indian Service; died in the Veterans Administration Hospital April 8, aged 67.

Dickie, Walter Murray, Berkeley, Calif.; Medical Department of the University of California, San Francisco, 1901; served as director of public health for the California State Board of Health of which he was for many years secretary and executive officer; died May 8, aged 81, of aneurysm of the abdominal aorta and arteriosclerosis.

Donohue, John Daniel, Uncasville, Conn.; Baltimore Medical College, 1909; member of the Connecticut State Medical Society; served as health officer of Montville and as school physician; associated with the Lawrence Hospital in New London; died May 13, aged 71, of carcinoma of the large intestine.

Dullea, Katherine M., Los Angeles; Barnes Medical College, St. Louis, 1908; died May 15, aged 81, of congestive heart failure and arteriosclerosis.

Ferguson, Lewis Hamilton ⊕ Monett, Mo.; Kentucky School of Medicine, Louisville, 1907; served as mayor and as a member of the school board; member of the staff of St. Vincent's Hospital, where he died April 19, aged 75, of cancer of the lung.

Fezer, Florence ⊕ Greeley, Colo.; University of Colorado School of Medicine, Denver, 1913; on the staff of the Weld County General Hospital; died April 11, aged 74, of acute coronary thrombosis.

Flower, Ward Zephon, Minneapolis; College of Physicians and Surgeons of Chicago, 1887; died in Island Park, Minn., April 23, aged 95, of congestive heart disease.

Foley, Joseph Milton ⊕ Detroit; St. Louis University School of Medicine, 1926; specialist certified by the American Board of Radiology; member of the American Roentgen Ray Society; fellow of the American College of Radiology; associated with the Grace Hospital, where he died April 29, aged 58, of coronary thrombosis.

Fortner, Howard Garfield, Mount Carmel, Pa.; Jefferson Medical College of Philadelphia, 1905; died in the Geisinger Memorial Hospital April 28, aged 75.

Foster, Thomas Gardner, Lieut. Commander, U. S. Navy, retired, New York City; University of Virginia Department of Medicine, Charlottesville, 1899; joined the U. S. Navy in 1903 and retired April 21, 1928; died in the British Hospital in Buenos Aires May 5, aged 81, after having fractured his hip while aboard a ship on a cruise to South America.

Fountain, Charles B., Des Moines, Iowa; State University of Iowa College of Medicine, Iowa City, 1891; died May 10, aged 95, of arteriosclerosis.

Freeman, Perrin Newell ⊕ Greenfield, Mass.; Tufts College Medical School, Boston, 1929; specialist certified by the American Board of Obstetrics and Gynecology; fellow of the American College of Surgeons; past-president of the Franklin District Medical Society; for many years chief of obstetrics at the Franklin County Hospital; died in the Phillips House, Massachusetts General Hospital, Boston, May 2, aged 54, of carcinoma of the lung.

Friedman, Edward Manuel, Highland Park, Ill., Bennett Medical College, Chicago, 1914; served as health officer for the board of health of Chicago and a staff physician for the Metropolitan Life Insurance Company; died in the Highland Park Hospital May 22, aged 68, of coronary disease.

Gaffney, Charles Bernard ⊕ Bridgeport, Conn.; Loyola University School of Medicine, Chicago, 1930; for many years associated with St. Vincent's Hospital, where he was chief in the department of physical medicine and past-president of the staff and where he died May 24, aged 55, of arteriosclerotic heart disease.

Garrett, Rhea Edward ⊕ Hartsville, Tenn.; University of Tennessee Medical Department, Nashville, 1910; died in the Vanderbilt University Hospital, Nashville, May 5, aged 69, of cancer.

Gier, Wilber Joseph, San Diego, Calif.; the Hahnemann Medical College and Hospital, Chicago, 1917; died March 28, aged 72, of cerebral hemorrhage.

Goldson, Vernon French ⊕ Jamaica, N. Y.; Howard University College of Medicine, Washington, D. C., 1943; member of the American Academy of General Practice; veteran of World War II and Korean War; associated with Queens General and Memorial hospitals; died in the Mary Immaculate Hospital, May 17, aged 51, of pulmonary embolism, complicating fracture of the left tibia when he was struck by an automobile.

Kennell, Lloyd Armour ⊕ San Diego, Calif.; Hahnemann Medical College and Hospital of Philadelphia, 1917; for many years served in the regular U. S. Navy; died May 8, aged 68, of cerebral hemorrhage and arteriosclerosis.

King, Peter Campbell ⊕ Swayzee, Ind.; Indiana University School of Medicine, Indianapolis, 1923; past-president of the Grant County Medical Society; veteran of World War II; a director and vice-president of the Grant County State Bank; died in the Robert Long Hospital, Indianapolis, May 11, aged 58.

King, Thomas Andrew, West Union, Iowa; State University of Iowa College of Medicine, Iowa City, 1905; died March 22, aged 81, of injuries received in a fall down stairs.

King, William Thomas ⊕ Ahmeek, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1901; past-president of the Upper Peninsula Medical Society; for many years head of the medical staff of the local mine; served as director of the Keweenaw Savings Bank; died May 1, aged 83.

Kornitzer, Ernest Franklin, Lugano, Switzerland; Medizinische Fakultat der Universitat, Vienna, Austria, 1913; for many years practiced in New York City, where he was associated with the Mount Sinai Hospital; died May 25, aged 68, of sarcoma of the kidney.

Leonard, Frederick Sylvester ⊕ Dubuque, Iowa; St. Louis University School of Medicine, 1908; formerly county coroner; died May 17, aged 75.

Luke, Chester Kuhl, Alma, Ga.; Emory University School of Medicine, Atlanta, 1945; interned at the Emory University Hospital; veteran of World War II; died in the Veterans Administration Hospital, Dublin, April 28, aged 43, of injuries received in an automobile accident.

McConnell, Thomas Hugh Jr., Sulphur Springs, Texas; University of Texas School of Medicine, Galveston, 1933; past-president of the Hopkins-Franklin Counties Medical Society; died in Greenville Feb. 27, aged 47, of coronary occlusion.

McNamara, Thaddeus Maria Jr. ⊕ Redwood City, Calif.; Washington University School of Medicine, St. Louis, 1936; veteran of World War II; died May 3, aged 47, of pneumonia.

Maness, Charles Edward, Neosho, Mo.; National University of Arts and Sciences Medical Department, St. Louis, 1917; member of the Missouri State Medical Association; veteran of World War I; died in St. John's Hospital, Joplin, May 2, aged 66.

Marshall, John Louis ⊕ Aspinwall, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1925; on the staff of the Mercy Hospital, Pittsburgh, for many years; died in the Pittsburgh Hospital May 6, aged 57, of acute pancreatitis.

Mayo, Basil Sylvester, Dresden, Tenn.; University of Tennessee Medical Department, Nashville, 1905; died in the Veterans Administration Hospital, Memphis, April 20, aged 74.

Meyer, Herman Charles, Necedah, Wis.; Rush Medical College, Chicago, 1917; served in France during World War I; health officer; vice-president of the Necedah Bank; died in St. Joseph's Hospital, Marshfield, May 14, aged 69, of cerebral hemorrhage.

Morehouse, Frank L., Fort Wayne, Ind.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1898; died May 14, aged 85, of uremia.

Nahrwold, Elmer William ⊕ Fort Wayne, Ind.; St. Louis University School of Medicine, 1932; past-president of the Allen County Medical Society; veteran of World War II; served on the staffs of the Lutheran and St. Joseph's hospitals and the Parkview Memorial Hospital, where he died May 5, aged 50, of carcinoma of the pancreas.

Nance, Fuller, Baltimore; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1914; an associate member of the American Medical Association; also a graduate in pharmacy; retired medical and surgical director of the Baltimore and Ohio Railroad; died April 3, aged 75.

Nevil, James Lemuel ⊕ Metter, Ga.; University of Georgia Medical Department, Augusta, 1914; died April 5, aged 75, of a heart attack.

Newman, James Feely, Sparta, N. J.; Long Island College Hospital, Brooklyn, 1898; died in the Franklin (N. J.) Hospital March 24, aged 80.

Niciphor, Ludwig, South Pasadena, Calif.; Medizinische Fakultat der Universitat, Vienna, Austria, 1906; died May 4, aged 76, of cerebral embolism.

Nilssen, Hans W. ⊕ Chicago; Chicago Medical School, 1923; member of the staff of the Norwegian American Hospital, where he died April 24, aged 76, of carcinoma of the urinary bladder.

schistosomal ova Of 108 patients who did not have schistosomiasis, leukocytic myocardial infiltration was present in 26 (23 8%)

Cancer of the Large Intestine —From January, 1940, to August, 1956, 150 patients (93 women and 57 men) were admitted to the Instituto de Cancer with cancer of the large intestine, 7 had cancer of the colon and 143 rectal lesions All lesions were proved to be malignant by histological examination All were carcinoma except one which was a melanoma of the rectum Adenocarcinoma represented 70% of all cases Undue delay in making the diagnosis and/or starting the indicated treatment was noted in 41 4% When a surgical specimen was obtained (57 cases), there was found in 40% a divergence on histological gradations between that and the biopsy specimen This material was presented by Dr Amador Campos before the Brazilian College of Surgeons Most of the lesions were far advanced when first seen, 42% were inoperable The operability rate rose from 48% to 74% in the last two-year period of the study The colon or rectum was resected in 62 cases, three of these operations were palliative The Miles operation was performed in 36 cases and colectomy and anterior resection of the rectum in 12 In nine patients with rectal cancer, a radical pelvic lymphadenectomy was performed along with the Miles operation The inferior mesenteric artery was ligated as high as possible in all of these nine patients, three of them were found to have pelvic lymph node involvement In five patients Babcock's operation was performed, and in one the operation of d'Allaines was attempted This patient and all but one of those underwent Babcock's operation had poor results as far as sphincter control was concerned The operative mortality was 25%, due chiefly to the poor general condition of the patients and to the advanced stage of the lesions

INDIA

Influenza Control —Influenza is now a reportable disease in all the states, and the state health authorities have been asked to inform the central government if they need any assistance in controlling the disease The director of the All India Institute of Hygiene and
Public Health, Calcutta, has b sked t an
epidemiologic study of the p de
cutta Influenza vaccine is u
government In the city of M
steadily on the decline during
15, though the daily incidence
mained high In Bombay state
deaths had been reported on June
cases and 50 deaths w omb
ease was rapidly dec
spreading in other tow
of districts had reporte
outside Calcutta the numb
also, the incidence is repor
6,625 cases and 45 deaths
4,057 cases and 45 deaths o

alone, in the next two days, 1,100 cases and 18 deaths were recorded in the city The epidemic in that state has passed its peak

The epidemic had affected some 425,000 people and claimed 200 lives up to June 22 It was generally receding in almost all parts of the country The metropolitan areas of Bombay, Madras, Calcutta, and Delhi were most severely affected Most of the deaths reported were from these cities

Tuberculosis —C G Pandit (*Licentiate* 6 12 [March] 1957) says that tuberculosis is a major public health problem in India, being second only to malaria The Health Survey and Development Committee estimated, in 1954, that about 2,500,000 persons were suffering from active tuberculosis and that there were about 500,000 deaths a year from this cause A minimum of 500,000 hospital beds and about 4,000 tuberculosis clinics are needed The approach to the control of tuberculosis at the time these recommendations were made by the council was chiefly defensive in nature and was conceived in terms of isolating and treating active cases of tuberculosis in institutions The advent of effective antituberculosis drugs and the increasing evidence of the value of BCG vaccination make it possible to adopt positive methods of prevention on a large scale Toward this end, a nationwide BCG vaccination program was undertaken in 1951 It is hoped to complete vaccination of all nonreactors among India's estimated 170 million susceptible people by 1960 Concurrently, the antituberculosis drugs will be used on a mass scale

A systematic survey of the incidence of pulmonary tuberculosis in the various cross-sections of the population was begun in 1956 on a countrywide basis by means of mass x-ray and bacteriological examinations Investigations on the age of patients at the time of primary infection have also been undertaken A scheme for evaluating the different procedures used in BCG vaccination and collecting data on postvaccination tuberculin sensitivity is under way The council is supporting studies on chemotherapeutic control of tuberculosis under controlled hospital conditions The appearance of drug resistance in such treated cases and the virulence of resistant organisms to guinea pigs are also being studied Because the isolation and treatment of every patient with active tuberculosis is not practicable, the importance of providing adequate treatment in the patient's home cannot be
over sized A study of domiciliary treatment has
ken in collaboration with the British
h Council and the World Health Or
ental studies on the mechanism of
bolic requirements of tubercle
alnutrition on the host para
sis are being carried out
ving standards in the
ern of morbidity

Gujral and Co-
ril] 1957) tested a
es for their hyp-
of them were also

anticonvulsants, then quantitative assay in comparison with phenobarbital sodium and diphenylhydantoin sodium was performed by pentylenetetrazol (Metrazol) seizure threshold tests and maximal electroshock seizure tests in rats Groups of 30 animals were tested with various dosages of three drugs QZ-2(2-methyl-3 orthotolyl-4 quinazolone) was the most potent anticonvulsant of the drugs tested It was superior to phenobarbital against pentylenetetrazol-induced seizures and had 80% of the potency of diphenylhydantoin against maximal electroshock seizures QZ-1(2-methyl 3-phenyl-4-quinazolone) and QZ-4(2-ethyl-3-phenyl-4-quinazolone) were weaker than phenobarbital and diphenylhydantoin, but both of them also protected against both types of seizures

Sedimentation Rate in the Nephrotic Syndrome —N R Konar (*J Indian M A* 28 11 [June 1] 1957) stated that the nephrotic syndrome may show natural remissions and relapses Various criteria have been put forward to determine whether the remission in a particular patient is permanent The author observed 12 patients in whom, in addition to the usual tests, the sedimentation rate was determined by the Westergren method If the reading was more than 100 mm in the first hour, this figure was used, otherwise, half of the total of the first-hour reading plus half of the second-hour reading were taken as the sedimentation rate No correction was made for anemia In all the cases observed, the sedimentation rate was raised and remained raised as long as edema, albuminuria, and hypoalbuminemia were present Some patients who appeared to be healthy were shown to be still in the active stage of the disease by this test The hypoalbuminemia is probably responsible for the increase in the sedimentation rate, although the associated slightly raised globulin content of serum and the hypercholesterolemia may be contributory In addition to the examination of the urine and chemical analysis of blood, this test should be carried out to assess the activity of the nephrotic syndrome

New Hospitals for Railwaymen —Thirteen new hospitals and 75 dispensaries for the exclusive benefit of railwaymen will be opened in different parts of the country during the second Five-Year Plan This will bring the total number of hospitals and dispensaries for railwaymen to 93 and 500 respectively This means an addition of 1,600 hospital beds for railwaymen, or a 45% increase over the present number All such hospitals and dispensaries are open also to the families of railway employees Special arrangements are also being made by the railway board for extending medi- al facilities to railwaymen and members of their es suffering from tuberculosis Special annexes g sanatoriums will be built for the exclusive ilway employees

Milk Proteins —J N Pohowalla and co-work- *an Journal of Child Health*, April 1, 1957) malnutrition in children is widely prevalent 3% of the patients admitted to the pediatric hospital in Indore were below 65% of their expected weights, and severe states of malnutrition were present in 5% Infantile cirrhosis of the liver is also common, 6 5% of the patients admitted to the pediatric wards in the last six years showed evidence of this disease A history of these children revealed either prolonged breast feeding without supplementary foods or partial or complete stoppage of breast feeding with a grossly insufficient intake of animal proteins The dietetic history of mothers of these children also showed a habitual low-protein intake The amount of breast milk protein in the mother may thus be so adversely affected as to produce a state of protein undernutrition in the infant The authors analyzed for protein content human milk samples from mothers of 22 children with severe states of malnutrition and infantile cirrhosis of the liver Samples from 14 other mothers of the same socioeconomic class were analyzed as a control Milk was collected by breast pump over a 24-hour period The values obtained ranged from 0 33 to 1 33% in mothers of malnourished children and children with infantile cirrhosis, while it was 0 52 to 1 78% in the controls The mother's milk was the only source of animal protein in most of the afflicted children The children in this series, as a whole, were receiving a very low amount of protein per kilogram of expected body weight as a result of intake of milk which was poor in quality and quantity The diet of the mothers was totally lacking in animal proteins and deficient in calories A low-protein content of human milk under such conditions may produce protein deficiency states in infants and may be a factor in the production of infantile cirrhosis

SWEDEN

Hypercholesteremia —The syndrome of hypercholesteremia, xanthomatosis, and angina pectoris is recognized so often that it must now be rated as a common disease Welin and Cramer (*Nordisk medicin*, May 30, 1957) report a series of 58 patients seen within 26 months Most of the patients had serum-cholesterol levels between 300 and 400 mg per 100 ml Only one of the 24 male patients had less than 300 mg per 100 ml Of the 58 patients, 32 had xanthomas in their tendons, chiefly the tendons of the fingers Most of the patients sought medical aid because of angina-like disturbances, which tended to be more severe and to begin earlier in life in male than in female patients Women predominated in this series, because they seek medical aid earlier than men for diffuse cardiac symptoms A frequent concomitant manifestation, of bad prognostic significance, was arcus senilis observed in 15 men and 11 women Xanthelasma, on the other hand, was more common among women than among men, the ratio being 16 10 Several of the patients sought medical aid because of ill-defined symptoms such as headache The combination of headache with vague symptoms of angina pectoris had often led to the diagnosis of psychogenic disease before the current diagnosis was made None of the patients was quite free from precordial pain, and most of them suffered from effort-angina The clinical findings did not always

Norup John ⊕ Berkley, Mich, Københavns Universitet Laegevidenskabelige Fakultat, Denmark, 1924, member of the American Academy of General Practice, served on the school board, on the staffs of the Mount Carmel Mercy Hospital in Detroit and of the William Beaumont Hospital in Royal Oak, where he died April 16, aged 58

Paris, Anthony Charles Buffalo, University of Buffalo School of Medicine, 1925, member of the Medical Society of the State of New York, veteran of World War I, associated with the Millard Fillmore Hospital, where he died May 20, aged 61, of generalized carcinomatosis

Parrish, William Albritton ⊕ Midland City, Ala, University of Nashville (Tenn) Medical Department, 1909, served as mayor and as state senator, member of the board of education, died in the Dale County Hospital, Ozark, May 18, aged 80

Pirsch, Margaret Veronicka ⊕ Kenosha, Wis, Marquette University School of Medicine, Milwaukee, 1923, served as president of the Kenosha County Mental Hygiene Association, died in St Catherine's Hospital May 15, aged 71, of cardiac tamponade and myocardial infarction

Popplewell, James Roscoe ⊕ Jamestown, Ky, University of Arkansas School of Medicine, Little Rock, 1933, died in the Kentucky Baptist Hospital in Louisville May 9, aged 52

Robins, William F, Ozan Ark Memphis (Tenn) Hospital Medical College, 1898 died in Texarkana Feb 23, aged 86, of myocardial failure and fracture of the right hip

Rose, Rose Minnie Robertson Mo, Barnes Medical College, St Louis, 1907, practiced in St Louis, died March 12, aged 86

Rosenthal, Samuel Edward ⊕ Spokane Wash University of Oregon Medical School, Portland, 1910, veteran of World War I, on the staffs of Deaconess and St Luke's hospitals and Sacred Heart Hospital, where he died March 23, aged 69, of coronary occlusion

Rossano, Augusto Thomas, New York City, Columbia University College of Physicians and Surgeons, New York City, 1906, an associate member of the American Medical Association, veteran of World War I, served on the staff of the Mother Cabrini Memorial Hospital, died April 3, aged 74, of arteriosclerotic and hypertensive cardiovascular disease

Scholer Henry Charles ⊕ Monmouth, Ill, University of Kansas School of Medicine, Kansas City, Kan, 1920, also a graduate in pharmacy, secretary of the Warren County Medical Society, city health officer, during World War II chairman of the Selective Service Examining Board, died April 23, aged 65, of coronary thrombosis

Sherman, Edgar Payne ⊕ New Milford, N J, Washington University School of Medicine, St Louis, 1910, died Feb 7, aged 72, of cerebral hemorrhage

Singleton, George Washington Jr, Shelby, N C, Meharry Medical College, Nashville, Tenn, 1946, served an internship and residency at the Kansas City (Mo) General Hospital, on the staff of the Shelby Hospital, died April 30, aged 34, of burns received in an explosion

Snively, Andrew Franklin, Bryn Mawr, Pa, Medico-Chirurgical College of Philadelphia, 1903, an associate member of the American Medical Association, died in Prospect Park May 23, aged 79, of myocardial infarction

Speck, Julius C, Youngstown, Ohio, Jefferson Medical College of Philadelphia, 1919, died June 1, aged 62, of cerebral hemorrhage

Stanton, Margaret Enright ⊕ Chicago, University of Illinois College of Medicine, Chicago, 1944, interned at the Henrotin Hospital, member of the staff of the Mary Thompson Hospital, died in the Illinois Masonic Hospital June 6, aged 43, was shot and killed

Twyman, Elmer Davis ⊕ Kansas City, Mo, Northwestern University Medical School, Chicago, 1907, specialist certified by the American Board of Surgery, member of the Western Surgical Association, fellow of the American College of Surgeons, served on the staffs of the Independence (Mo) Sanitarium and Hospital, Menorah, Research, St Joseph, and St Luke's hospitals, veteran of World War I, died April 5, aged 72

Vogelsang, Walter Alfred, Captain, U S Navy, retired, San Diego, Calif, University of Tennessee College of Medicine, Memphis, 1912, fellow of the American College of Physicians, entered the U S Navy in 1916, retired Sept 1, 1946, service member of the American College of Physicians, died Feb 27, aged 69, of peritonitis and perforated ulcer

Walker, Melville Frederick ⊕ Dillsboro, Ind, Eclectic Medical College, Cincinnati 1917, veteran of World War I, died in Fort Thomas, Ky, April 3, aged 62, of acute myocardial infarction

Watts, John Jennings, Detroit, Detroit College of Medicine and Surgery, 1915, an associate member of the American Medical Association, veteran of World War I, member of the staff of Providence Hospital, where he died May 3, aged 64, of arteriosclerosis

Weil, Harry Joseph ⊕ Indianapolis, Medical College of Indiana, Indianapolis, 1903 veteran of World War I, died May 17, aged 76

Weissman, Max, New York City, Columbia University College of Physicians and Surgeons, New York City, 1903 died in the Mount Sinai Hospital April 21, aged 77, of myocardial insufficiency and arteriosclerotic heart disease

Werlich, Richard Eugene ⊕ San Diego, Calif, Rush Medical College, Chicago, 1915, veteran of World War I, died May 21, aged 67, of cerebral hemorrhage

Willis, Thomas Leo, Mangum, Okla, University of Tennessee Medical Department, Nashville, 1909, died April 26, aged 77, as the result of a fall

Wilson, Harold Kenneth, San Francisco, Northwestern University Medical School, Chicago, 1904, at one time practiced in Fallon, Nev, where he was county health officer, died April 15, aged 77

FOREIGN LETTERS

BELGIUM

Dryness of the Mucous Membranes —At the meeting of the Belgian Gastroenterological Society in February, Weill reported a series of seven patients (six women and one man) with dryness of the mucous membranes (Sjogren's syndrome) This syndrome is characterized by deficiency of tears associated with secondary lesions of the conjunctiva and cornea, deficiency of saliva, dryness in the nose and throat associated with a typical cough, and, if the syndrome is in an advanced stage, hoarseness Microscopic examination reveals atrophy of the secretory glands Deficiency of secretion (achylia) was also found in the stomach and pancreas A decrease of the intestinal secretion is manifested by constipation, perianal pruritus, and congestion of the hemorrhoidal vessels The syndrome is most frequently associated with rheumatic arthroses The cutaneous symptoms include dry skin, brittle hair, and keratosis around the hair follicles The disease occurs chiefly in women and seems to become manifest in the menopausal period All the patients in this series had had dryness of the mucous membranes of long duration The author pointed out a new symptom, typical of this disease the characteristic aspect of the rectal mucosa covered with patches of adherent feces This was observed only when there was no previous preparation or enema The treatment is symptomatic and includes cervical sympathectomy, parasympathomimetics, electrocoagulation of the outlets of the lacrimal canaliculi, artificial tears, and various vitamins, but the results are disappointing The author, however, obtained excellent results with a combination of larger doses of vitamin A and oxapropanium iodide Under its action perspiration, defecation, and lacrimation were restored

Aortic Catheterization —At the meeting of the Belgian Radiological Society in February, Bonte, Riff, and Spy reported on the angiographic possibilities offered by aortic catheterization This procedure gives a selective opacification of a certain area Its advantages are excellent contrast, the use of a small amount of contrast medium, ease of interpretation of the findings, ease of repetition, and low toxicity In 1931, Dos Santos showed three possible routes for the puncture of the abdominal aorta At present, even the thoracic aorta may be punctured, but the route most commonly used by the speaker is the femoral artery The mastoid area can be reached with the aid of a polyethylene tube Catheterization in the area of the femoral artery aids in the study of tumors of the true pelvis or uterine cervix and for placentography, that of the renal area is useful for study of vascularization of the kidney The method is useful also in the study of aneurysms

The thoracic aorta can be reached by a longer tube There are several methods for opacifying the thoracic aorta 1 Intravenous injection requires a large trocar and rapid injection 2 Injection can be made by counter-flow into the left brachial artery or, with the aid of an elbowed tube, into the radial artery and can reach the aorta or one of its branches This requires the use of an apparatus capable of developing pressures up to 8 kg In fact, the increased pressure at the level of the aorta, measured with the aid of another tube introduced through the femoral artery and attached to a manometer, is only one-half an atmosphere Injection into the coronary arteries must be avoided The catheter, introduced through the femoral artery and pushed far enough, penetrates generally into the subclavian artery and reaches even the vertebral artery If it does not penetrate directly, a change in the position of the patient may help This allows the selective injection of the vessels of the posterior fossa and complements pneumography in the diagnosis of certain tumors, especially vascular tumors of this area

Bone Lesions in Leukemia —At the meeting of the Belgian Radiological Society in March, Haesendonck called attention to two types of bone lesions encountered in the roentgenograms of children with leukemia These are either destructive lesions (such as generalized osteoporosis, osteolytic foci, and metaphysial lesions) or productive lesions (such as the foci of osteosclerosis or periosteal reactions) These lesions are not modifications of leukemia but rather the expression of a disturbance of the ossification mechanism due to the infiltration of pathological leukocytes into the bone marrow These changes are mostly found in the long bones The transverse osteoporotic bands, localized in the metaphysial area, previously attributed to other causes, are frequently seen Their extent progresses with the course of the disease but seems to be reversible Of 39 children, 15 showed bony lesions and were retained in the hospital

BRAZIL

Myocardial Lesions in Schistosomiasis —Dr Humberto Menezes (*Anais da Faculdade de medicina da Universidade do Recife*, Dec 16, 1956) was unable to find any correlation between infestation with Schistosoma mansoni and diffuse myocarditis In the patients with schistosomiasis who also had Fiedler's myocarditis, the cardiac condition was usually due to syphilis, American trypanosomiasis, or some other demonstrable cause True schistosomal myocarditis is a very rare focal lesion caused by the deposition of ova in the myocardium or the necrotic action of dead worms in branches of the coronary vessels Of 100 autopsies of patients with Manson s schistosomiasis, 25% showed diffuse lymphocytic infiltration of the myocardium, and only two lesions were produced by

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The items in these letters are contributed by regular correspondents in the various foreign countries

schistosomal ova Of 108 patients who did not have schistosomiasis, leukocytic myocardial infiltration was present in 26 (23 8%)

Cancer of the Large Intestine—From January, 1940, to August, 1956, 150 patients (93 women and 57 men) were admitted to the Instituto de Cancer with cancer of the large intestine, 7 had cancer of the colon and 143 rectal lesions All lesions were proved to be malignant by histological examination All were carcinoma except one which was a melanoma of the rectum Adenocarcinoma represented 70% of all cases Undue delay in making the diagnosis and/or starting the indicated treatment was noted in 41 4% When a surgical specimen was obtained (57 cases), there was found in 40% a divergence on histological gradations between that and the biopsy specimen This material was presented by Dr Amador Campos before the Brazilian College of Surgeons Most of the lesions were far advanced when first seen, 42% were inoperable The operability rate rose from 48% to 74% in the last two-year period of the study The colon or rectum was resected in 62 cases, three of these operations were palliative The Miles operation was performed in 36 cases and colectomy and anterior resection of the rectum in 12 In nine patients with rectal cancer, a radical pelvic lymphadenectomy was performed along with the Miles operation The inferior mesenteric artery was ligated as high as possible in all of these nine patients, three of them were found to have pelvic lymph node involvement In five patients Babcock s operation was performed, and in one the operation of d'Allaines was attempted This patient and all but one of those underwent Babcock's operation had poor results as far as sphincter control was concerned The operative mortality was 25%, due chiefly to the poor general condition of the patients and to the advanced stage of the lesions

INDIA

Influenza Control—Influenza is now a reportable disease in all the states, and the state health authorities have been asked to inform the central government if they need any assistance in controlling the disease The director of the All India Institute of Hygiene and Public Health, Calcutta, has been asked to make an epidemiologic study of the present epidemic in Calcutta Influenza vaccine is under production by the government In the city of Madras the disease was steadily on the decline during the week ending June 15, though the daily incidence in the state still remained high In Bombay state 44 257 cases and 52 deaths had been reported on June 14, of these, 6,101 cases and 50 deaths were from Bombay city The disease was rapidly declining in Bombay city but was spreading in other towns In West Bengal a number of districts had reported cases of influenza, though outside Calcutta the number was few In Calcutta city, also, the incidence is reported to be decreasing Of the 6,625 cases and 45 deaths reported up to June 13, 4,057 cases and 45 deaths occurred in Calcutta city alone, in the next two days, 1,100 cases and 18 deaths were recorded in the city The epidemic in that state has passed its peak

The epidemic had affected some 425,000 people and claimed 200 lives up to June 22 It was generally receding in almost all parts of the country The metropolitan areas of Bombay, Madras, Calcutta, and Delhi were most severely affected Most of the deaths reported were from these cities

Tuberculosis—C G Pandit (*Licentiate* 6 12 [March] 1957) says that tuberculosis is a major public health problem in India, being second only to malaria The Health Survey and Development Committee estimated, in 1954, that about 2,500,000 persons were suffering from active tuberculosis and that there were about 500,000 deaths a year from this cause A minimum of 500,000 hospital beds and about 4,000 tuberculosis clinics are needed The approach to the control of tuberculosis at the time these recommendations were made by the council was chiefly defensive in nature and was conceived in terms of isolating and treating active cases of tuberculosis in institutions The advent of effective antituberculosis drugs and the increasing evidence of the value of BCG vaccination make it possible to adopt positive methods of prevention on a large scale Toward this end, a nationwide BCG vaccination program was undertaken in 1951 It is hoped to complete vaccination of all nonreactors among India s estimated 170 million susceptible people by 1960 Concurrently, the antituberculosis drugs will be used on a mass scale

A systematic survey of the incidence of pulmonary tuberculosis in the various cross-sections of the population was begun in 1956 on a countrywide basis by means of mass x-ray and bacteriological examinations Investigations on the age of patients at the time of primary infection have also been undertaken A scheme for evaluating the different procedures used in BCG vaccination and collecting data on postvaccination tuberculin sensitivity is under way The council is supporting studies on chemotherapeutic control of tuberculosis under controlled hospital conditions The appearance of drug resistance in such treated cases and the virulence of resistant organisms to guinea pigs are also being studied Because the isolation and treatment of every patient with active tuberculosis is not practicable, the importance of providing adequate treatment in the patient s home cannot be overemphasized A study of domiciliary treatment has been undertaken in collaboration with the British Medical Research Council and the World Health Organization Fundamental studies on the mechanism of drug resistance, metabolic requirements of tubercle bacilli, and the role of malnutrition on the host parasite relationship in tuberculosis are being carried out Substantial improvements in living standards in the near future should alter the pattern of morbidity

New Anticonvulsant Drugs—M L Gujral and Coworkers (*Indian J M Res* 45 2 [April] 1957) tested a series of 2,3-disubstituted quinazolones for their hypnotic effects and toxicity As some of them were also anticonvulsants, their quantitative assay in comparison with phenobarbital sodium and diphenylhydantoin sodium was performed by pentylenetetrazol (Metrazol) seizure threshold tests and maximal electroshock seizure tests in rats Groups of 30 animals were tested with various dosages of three drugs QZ-2(2-methyl-3 orthotolyl-4 quinazolone) was the most potent anticonvulsant of the drugs tested It was superior to phenobarbital against pentylenetetrazol-induced seizures and had 80% of the potency of diphenylhydantoin against maximal electroshock seizures QZ-1(2-methyl-3-phenyl-4-quinazolone) and QZ-4(2-ethyl-3-phenyl-4 quinazolone) were weaker than phenobarbital and diphenylhydantoin, but both of them also protected against both types of seizures

Sedimentation Rate in the Nephrotic Syndrome—N R Konar (*J Indian M A* 28 11 [June 1] 1957) stated that the nephrotic syndrome may show natural remissions and relapses Various criteria have been put forward to determine whether the remission in a particular patient is permanent The author observed 12 patients in whom, in addition to the usual tests, the sedimentation rate was determined by the Westergren method If the reading was more than 100 mm in the first hour, this figure was used, otherwise, half of the total of the first-hour reading plus half of the second-hour reading were taken as the sedimentation rate No correction was made for anemia In all the cases observed, the sedimentation rate was raised and remained raised as long as edema, albuminuria, and hypoalbuminemia were present Some patients who appeared to be healthy were shown to be still in the active stage of the disease by this test The hypoalbuminemia is probably responsible for the increase in the sedimentation rate, although the associated slightly raised globulin content of serum and the hypercholesterolemia may be contributory In addition to the examination of the urine and chemical analysis of blood, this test should be carried out to assess the activity of the nephrotic syndrome

New Hospitals for Railwaymen—Thirteen new hospitals and 75 dispensaries for the exclusive benefit of railwaymen will be opened in different parts of the country during the second Five-Year Plan This will bring the total number of hospitals and dispensaries for railwaymen to 93 and 500 respectively This means an addition of 1,600 hospital beds for railwaymen, or a 45% increase over the present number All such hospitals and dispensaries are open also to the families of railway employees Special arrangements are also being made by the railway board for extending medical facilities to railwaymen and members of their families suffering from tuberculosis Special annexes to existing sanatoriums will be built for the exclusive use of railway employees

Human Milk Proteins—J N Pohowalla and co-workers (*Indian Journal of Child Health,* April 1, 1957) state that malnutrition in children is widely prevalent in India, 53% of the patients admitted to the pediatric wards of a hospital in Indore were below 65% of their expected weights, and severe states of malnutrition were present in 5% Infantile cirrhosis of the liver is also common, 6 5% of the patients admitted to the pediatric wards in the last six years showed evidence of this disease A history of these children revealed either prolonged breast feeding without supplementary foods or partial or complete stoppage of breast feeding with a grossly insufficient intake of animal proteins The dietetic history of mothers of these children also showed a habitual low-protein intake The amount of breast milk protein in the mother may thus be so adversely affected as to produce a state of protein undernutrition in the infant The authors analyzed for protein content human milk samples from mothers of 22 children with severe states of malnutrition and infantile cirrhosis of the liver Samples from 14 other mothers of the same socioeconomic class were analyzed as a control Milk was collected by breast pump over a 24-hour period The values obtained ranged from 0 33 to 1 33% in mothers of malnourished children and children with infantile cirrhosis, while it was 0 52 to 1 78% in the controls The mother's milk was the only source of animal protein in most of the afflicted children The children in this series, as a whole, were receiving a very low amount of protein per kilogram of expected body weight as a result of intake of milk which was poor in quality and quantity The diet of the mothers was totally lacking in animal proteins and deficient in calories A low-protein content of human milk under such conditions may produce protein deficiency states in infants and may be a factor in the production of infantile cirrhosis

SWEDEN

Hypercholesteremia—The syndrome of hypercholesteremia, xanthomatosis, and angina pectoris is recognized so often that it must now be rated as a common disease Welin and Cramer (*Nordisk medicin,* May 30, 1957) report a series of 58 patients seen within 26 months Most of the patients had serum cholesterol levels between 300 and 400 mg per 100 ml Only one of the 24 male patients had less than 300 mg per 100 ml Of the 58 patients, 32 had xanthomas in their tendons, chiefly the tendons of the fingers Most of the patients sought medical aid because of angina-like disturbances, which tended to be more severe and to begin earlier in life in male than in female patients Women predominated in this series, because they seek medical aid earlier than men for diffuse cardiac symptoms A frequent concomitant manifestation, of bad prognostic significance, was arcus senilis observed in 15 men and 11 women Xanthelasma, on the other hand, was more common among women than among men, the ratio being 16 10 Several of the patients sought medical aid because of ill-defined symptoms such as headache The combination of headache with vague symptoms of angina pectoris had often led to the diagnosis of psychogenic disease before the current diagnosis was made None of the patients was quite free from precordial pain, and most of them suffered from effort-angina The clinical findings did not always

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Identification Cards for Epileptics —The Swedish National League for the Care of Epileptics, founded in 1954, has promoted education of the public in matters concerning epilepsy by means of lectures and other activities This body is affiliated with the International League Against Epilepsy and has cooperated with the British League Against Epilepsy in issuing an identity badge and an identity card for epileptics The badge in blue and white enamel has the emblem devised by the British league The epileptic who is liable to seizures or unconsciousness can wear this badge on the lapel of his overcoat During a seizure, a passer-by is guided by this emblem, which sets him looking for the epileptic's identity card on which there is a printed statement to the effect that its wearer is liable to loss of consciousness and convulsions lasting so many minutes The passer-by is warned not to send for a physician or ambulance unless the seizure fails to pass off

Incidence of Reportable Diseases —The issue by the health authorities of a report on the infectious diseases reported in 1956 shows once again how the relative numerical importance of such diseases varies greatly from year to year In 1956 scarlet fever made up about 9,000 of the total of 13,100 communicable disease cases reported The corresponding figures of 1955 for scarlet fever was 7,600, and in 1954 was only 5,500 The figure for 1956 gives a rate of 124 cases of scarlet fever per 100,000 inhabitants No cases of diphtheria were reported in 1956, whereas the average was 433 cases yearly during the 10-year period 1945 to 1954 In 1956 only 248 paralytic cases and 301 nonparalytic cases of poliomyelitis were reported This contrasts with the figure of 5,090 cases reported in the record year of 1953 Only 25 cases of typhoid, 67 cases of dysentery, and 3 of undulant fever were reported in 1956 There were 46 cases of tularemia and 2,051 of epidemic hepatitis The latter figure compares favorably with the 11,736 cases reported in 1948 The cases of epidemic hepatitis reported in 1956 include the 629 primary and 100 secondary cases traced to infected oysters

UNITED KINGDOM

Postoperative Infection —Lunt and co-workers (*Lancet* 1 1240, 1957) reported a comparatively high rate of postoperative infection in a large hospital in Sheffield After 651 major gynecologic operations, some performed before and some after improved operating room and ward facilities had been provided, the total infection rate was 48% The operations were mainly total hysterectomy, pelvic-floor repair, vaginal operations involving opening of the peritoneal cavity, and gynecologic-abdominal operations other than total hysterectomy A patient was considered to be infected if there was evidence of pyrexia, wound sepsis, secondary hemorrhage, paralytic ileus, or thrombophlebitis or if chemotherapy was considered necessary There were many urinary infections, and, if these and respiratory infections were excluded, the incidence of infection fell from 48 to 28% The incidence of frank suppuration was 12% Even after the provision of improvements such as better ward spacing and a separate operating room for gynecologic cases, the sepsis rate was not lowered Local sepsis could be accounted for, because all surgical wounds were dressed in the open ward It was concluded that postoperative sepsis could be reduced only by providing more cubicle-type wards and better isolation facilities for infected patients A built-in air-suction system should be provided in all new hospital construction Other control measures include the use of bactericidal aerosols and the sterilization and oiling of blankets, screens, and floors in surgical wards to cut down bacterial contamination of dust Positive pressure ventilation of operating rooms and wards with filtered air and rigorous attention to the sterilization of instruments, gowns, gloves, solutions, and containers in the operating room were also advocated

Early Exposure to German Measles —Dr Charles Stevens, a director of the National Spastic Society, said that he intends to insure that his five daughters catch German measles this summer He will invite a child with the illness to stay at his home because the disease does no harm to children and confers a lasting immunity On the other hand, women who contract German measles during pregnancy are likely to give birth to spastic children Dr Stevens wife is in favor of her husband's plan It was a mutual decision in an attempt to prevent congenital defects (such as deafness) and ocular, cardiac, and cerebral abnormalities in any grandchildren they may have

National Formulary —The General Medical Services Committee, together with other branches of the profession, has prepared a new National Formulary It is the official formulary, together with the British Pharmacopoeia and the British Pharmaceutical Codex It has taken two and one-half years to prepare the new edition In compliance with requests, a new venture in the form of a pharmacological classification in English and largely in the metric system was incorporated Its financial success is already assured because there have been large orders from overseas

The National Health Service —The two letters quoted below are taken from the *British Medical Journal* of June 15, 1957, and show two facets of the effect of the National Health Service

> While conducting a village surgery, a Hungarian refugee who had been in this country since February came to me and wished me to let her have a prescription for 'serpasil' She thereupon showed me an ancient prescription, the only word of which was legible being the name serpasil I could find no suspicion of

blood pressure and with great difficulty made her understand tha she was not getting the prescription She then showed me an old photograph, which I guessed correctly was that of her mother, who in fact needed the serpasil I then got hold of her husband, who spoke a few words of English, and with his help elicited the following information The woman and many others like her had, since their arrival in this country, found our National Health Service a minor gold mine She had got her mother to send her Hungarian prescription over here, hence the difficulty in deciphering it She had with the aid of this been able to send monthly supplies of the drug at a shilling a time to her mother Also three pairs of elastic stockings and other items They told me that there was nothing unusual in this Many refugees did it I may add that she was not even registered with any doctor I wonder how many others have had similar experience? If it is many, it is small wonder the Health Service does not pay

Vincent Grantham

A correspondent wants to know more about our working load Perhaps the records of one single handed country doctor may interest him I have a list of a little over 2 000 In the period January 1 to May 31 1957 a period without a major epidemic, 869 individuals consulted me I paid 1 250 visits and held 2,392 consultations in the surgery a total of 3,642 items of service Many of my colleagues with big lists in smoky cities must have done twice as much How would other professions feel about this sort of 'work load ? I cannot imagine a solicitor conducting 3 642 interviews in five months being continuously on call and liable to a complaint and a fine if his clients were not satisfied with his efforts Yet in medicine as in law good advice is not given by tired men in a hurry Under the National Health Service to make a living general practitioners must take on more work than they can properly do It is not merely that there is no incentive to better work, we are forced to do second-rate medicine so that we can afford to bring up and educate our families This is the prostitution of an honourable profession I like to feel that my patients can consult me with no financial barriers between us and gladly suffer the ninety-nine trivial complaints that must be heard so that the one serious condition is brought to me in an early stage while it is still curable But the system breaks down when the doctor is too busy to give the time to those that need it The British public is getting its family doctors on the cheap and the public suffers from the system as much as do the doctors Good medical care is not bought at cut prices If the Government cannot afford to pay us the *proper rate for the* job it is not fit to employ a learned profession into whose hands is entrusted the health of the people

R P C Handfield-Jones

Cost of Drugs—Despite the increase, on Dec 1, of prescription charges to 14 cents for each item, the National Health Service drug bill continues to rise The total cost of medicines in England last year, apart from those given to hospital patients, was $141,500,000 The total number of prescriptions was 212,750,000, and the average cost of a prescription rose from about 60 to 67 cents

Poliomyelitis Increasing—The number of cases of poliomyelitis reported in the 24 weeks ending June 15 was 1,165 The corresponding figures for 1955 and 1956 were 446 and 689 The Minister of Health said that he had acted on expert medical advice when he failed to import poliomyelitis vaccine and that he did not intend to relax the strict controls and tests on the vaccine imposed by both the manufacturers and the medical research council Enough British vaccine was issued to give two injections to over a million children The decision to offer vaccination next to children born in 1955 and 1956 was made, because the younger children are most susceptible to the disease

Medical Use of Hypnotism—If something is to be done about the enormous number of psychoneurotics in our population, according to Alexander Kennedy (*Brit M J* 1 1317, 1957), it may be that our therapeutic sights should be lowered and that we should, for most patients, have a more concrete aim of relieving symptoms and making the patient happier and of less trouble to and less dependent on his fellowman If these are the objectives, shorter methods necessarily have a place, not as substitutes but as therapies in their own right, and, in this briefer and more physician-dominated treatment, hypnosis may have a large part to play Among the uses of hypnosis in psychologically healthy subjects, Kennedy lists high its use as an analgesic in childbirth In his experience, labor appears in no way delayed by hypnosis and the patients seem better able to relax and cooperate There is no danger of fetal anoxia and the mother is free to enjoy the ecstatic experience of labor well done and the arrival of a new child

WORLD HEALTH ORGANIZATION

World Health Assembly—The 10th World Health Assembly was held in May in Geneva Seventy-five of the 88 member and associate member states attended Delegations were sent from four countries (Albania Bulgaria, Poland, and the USSR) that recently resumed active participation in WHO At the end of the session, Rumania announced that it would resume active participation in WHO Members still remaining inactive are Czechoslovakia Hungary, the Ukraine, and Byelorussia Dr Paul F Russell, of the Rockefeller Foundation, was awarded the Darling Foundation medal and prize 'for outstanding achievements in the control of malaria The World Health Assembly accepted unanimously an invitation to meet next year in the United States where it will also hold a special session to celebrate the 10th anniversary of WHO

Review of 1956 Activities—The Director-General s report on the work done in 1956 indicates that WHO participated last year in nearly 700 health projects in 120 countries and territories and granted 883 fellowships to health workers Malaria eradication was one of WHO s main concerns during that period In the mass campaigns against endemic syphilis and yaws, 55 million people were examined and 16 million treated with penicillin by the end of 1956 Mass BCG vaccination campaigns against tuberculosis continued, with the help of UNICEF, and the large-scale use of antituberculosis drugs as a public health measure was carefully studied New developments in the fight against leprosy, rabies, trachoma, and poliomyelitis were reported Great emphasis is given in the report to WHO's efforts to improve public health administration and to help strengthen national health services in the fields of sanitation, health education, maternal and child health, nutrition, and professional training

Malaria Eradication After the decision, taken by the eighth World Health Assembly in Mexico City in 1955, to abandon piecemeal attempts to control malaria in favor of a determined and concerted effort on all continents to wipe out the infection before *mosquitoes have time to become* resistant to the insecticides currently used, a special world malaria fund was created to receive voluntary contributions from governments and private sources and to supplement WHO activities under its regular budget So far, voluntary contributions have been received amounting to $123,800 The director-general stressed that the fund 'has unfortunately received very little support so far and the meagre funds available are quite inadequate for the purpose' Eradication has been achieved in 10 countries or territories, is under way in 15, and has been initiated or planned in 38 The total population of these 63 countries is 1,211 million, or almost half the population of the world

Atomic Energy and Health WHO s program in the field of atomic energy and health can be summarized under five main heads (1) training of health physicists and medical personnel, (2) collection and distribution of information on the medical problems of atomic energy and the medical uses of radioisotopes, (3) study of the health problems involved in disposal of radioactive wastes, (4) distribution of radiation standards in collaboration with other international agencies, and (5) stimulation and coordination of research

New Strain of Influenza Virus —According to information received (WHO Weekly Epidemiological Record, no 22, May 29, 1957) from the World Influenza Center, London, a new strain of influenza virus A has been discovered in samples received there from Singapore, where a widespread epidemic of mild influenza was affecting an estimated 10% of the population early in May It is thought probable that this same virus has been responsible for the epidemics reported from Hong Kong (where 15 to 20% of the population was affected at the end of April), Taiwan, the Philippines, Cambodia, Malaya, Indonesia, Sarawak, and North Borneo No deaths have occurred except possibly in Manila, where, among the 800 cases reported since the beginning of May, 14 deaths were ascribed to influenza, and in Singapore, where a few deaths were also ascribed to the disease Confirmation of the cause of these deaths was not available The strain of the virus isolated in Singapore is described by the World Influenza Center as a new antigenic variant of type A differing in several respects from recently isolated strains It has other unusual properties as shown by its behavior in the laboratory In view of this, it is thought possible that existing influenza vaccines will not give satisfactory protection Studies are in progress regarding the suitability of the new strain for vaccine production A report from Singapore describes the disease as starting with severe headache and general pains The temperature ranged from 101 to 103 F (38 2 to 39 4 C) for two or three days followed by disability of the patient for about four days

The history of the recent influenza epidemics in the Western Pacific region begins with a report received on May 3 of a mild but widespread outbreak in Hong Kong and a similar report the next day from Singapore In both places, the epidemics were subsiding by the middle of May In Taiwan, there were over 100,000 cases in the first 10 days of May, while 800 cases involving 60% of the population, were reported from Manila up to May 17 and 153,000 were reported by May 29 In Cambodia, influenza outbreaks have been reported throughout the country since May 20 In Malaya, 80,000 cases were reported up to May 18 On May 24, the presence of the epidemic was reported in Sumatra and Java, and a report dated May 18 indicated that the epidemic had reached Kuching and Sibu in Sarawak Reports received on May 29 from North Borneo mentioned over 2,000 cases up to May 27 I was reported on May 17 that a ship arriving in India from Singapore had 44 patients with influenza on board, 260 passengers recovered from attacks during the voyage There were no deaths Influenza type A virus was isolated in Australia from patients with mild influenza among aircraft passengers recently arrived from Europe via Singapore

Health of City Children —Health problems of city children, particularly in rapidly growing countries where industrialization is starting, are reported as serious, and international assistance is needed to cope with this situation This was one of the recommendations of the joint committee on health policy of UNICEF and WHO, which held its 10th session in Geneva in May So far, the two organizations have given major emphasis to the development of mother and child health services in rural areas, but the situation existing in cities and towns, in this respect, is giving rise to grave concern The municipal authorities are frequently incapable of providing suitable housing and health and social facilities for the influx of newcomers and often receive no assistance from their governments The new part of the population is often crowded into fringe areas skirting the cities and lives under hygienic conditions worse than those existing in the villages There are no opportunities for the families to produce their own food There is likely to be greater overcrowding as well as lack of sunshine and fresh air The mothers, not having understanding, acquire a sophistication, often of a harmful sort, they tend to use inadequate quantities of patent infant foods and, in general, tend to give up traditional ways of feeding and caring for children

A pediatrician who studied large groups of children in a rural area and in an urban slum in an Indian city found that the prevalence of intestinal worms, rickets, tuberculosis, diphtheria, whooping cough, and severe malnutrition were greater among the urban than among the rural group These and other serious health problems among children living in crowded city areas are reported from all parts of the world The relative health status of children living under such circumstances varies from country to country In many cases it is likely to be found that services directed to solve such problems are just as deserving of international support as services to rural areas

CORRESPONDENCE

EPILEPSY AND THE WISCONSIN DRIVER'S LICENSE LAW

To the Editor —During the past 10 years the division of nervous and mental diseases of the commission on state agencies of the Wisconsin State Medical Society has waged a vigorous campaign to eradicate archaic and discriminatory laws These statutes pertaining to outmoded regulations on commitment and restrictive legislation run the gamut from the insane to the epileptic In the light of medical progress in the past 25 years there appears to be an anachronistic situation in which social progress has not kept pace with medical advances

Persons with well-controlled epilepsy constitute about 70% of the total epileptic population Despite such a person's good response to medical care, he was brought face to face with the stark realization that he had to combat a whole host of discriminations This included fields of education, employability, driving a motor vehicle, marriage, sterilization, and even commitment to mental hospitals or colonies for the feebleminded The physician has done his job quite well, but he himself was frustrated by the attitude of society toward his 'well' patient

We in Wisconsin felt that the first attack on discriminatory legislation should be directed toward the driver's licensing law, since until 1949 no person who had epilepsy could drive a car under any circumstances With this as a primary goal and with the excellent support of the Wisconsin State Medical Society, we proposed a bill in 1949 to allow the person with controlled epilepsy to drive a motor vehicle, with certain provisions This legislation was written into the statutes of the state of Wisconsin at that time, as the first of its kind in the United States

The provisions of the law are as follows When the epileptic can present medical certification that he has been completely free of attacks for two years he can obtain a driver's license, renewable every six months, upon application to the motor vehicle division Medical forms are sent to him to be filled out by his physician attesting to the fact that his condition has been completely controlled for over two years This license is automatically renewable every six months upon application and medical certification that the patient's condition has remained under complete control during the previous six months This license does not differ in any way from the license issued to normal drivers A second provision of the law applies to those whose epilepsy has been controlled less than two years but more than one year In this category the patient can apply to have his case reviewed by a medical appeal board which consists of two physicians who have a special interest in epilepsy and a representative of the motor vehicle department He must be present at the appeal hearing, at which time the board considers the physician's report, the stability of the applicant, his need to drive a car, and the facts that he is under medical care and that he appreciates the responsibility of a license to drive a motor vehicle If approved by the medical appeal board, the license is issued as in the first instance

Eight years have passed since the enactment of the epileptic driver's law This effective legislation made the medical society receptive to changes in other discriminatory legislation We were able to repeal the laws concerning sterilization and marriage The physician does not have to report epilepsy to the department of health Finally, we have been able to divorce the epileptic from the mentally deficient, the imbecile, and the insane All epileptic patients who were incarcerated in mental hospitals, colonies for the feebleminded, or jails who were not mentally ill, or mentally retarded, or had not committed a felony have been discharged There are no discriminatory laws concerning epilepsy in the statute books of the state of Wisconsin The number of people admitting to epilepsy on the initial request for a driver's license has shown a marked increase, indicating confidence in the law Most striking and dramatic is the fact that there has been only one accident reported in this group with special licenses, and after review it was found that this patient had stopped medication and was using too much alcohol

In reviewing what has happened during the past years, especially in connection with the Wisconsin Motor Vehicle Division, we find an enthusiastic, wholesome attitude toward the epileptic driver's license law Mr J W Thompson, director of the driver control division, has stated

> As for my own personal opinion I felt that adoption of the law making epilepsy a reportable disease came at an unfortunate time It was enacted in 1947 [since 1929 it was unlawful for an epileptic to operate a motor vehicle upon any highway of this state], which was within a year of the time when we had quite a number of young men released from military service who because of some blackout episode in their military experience, had been diagnosed to be subject to epileptic seizures When this fact was reported to us we had no choice but to require surrender of their operator's license and decline to issue any license to them Many of these young men, when they returned home to civilian surrounding where the extreme tensions present under combat situations were no longer present, were able to follow normal pursuits without any recurrence of the blackout spells
>
> It was this type of individual facing a dead end street as far as issuance of an operator's license was concerned that caused me the greatest degree of concern I felt that there should be at least some opportunity for a personal evaluation of the situation involving these individuals and their problem, to determine whether or not they would constitute a hazard on the highways of the State of Wisconsin individually rather than to reject them as a class

The establishment of our Medical Review Board procedure has at least opened the street to where they have an established procedure of reviewing their situations as an individual problem, and an opportunity of relief, if they are deserving of it I know, too that even our present procedure is not infallible The success of our problem depends a great deal on whether or not the patient in relating his medical history to his doctor is honest with the doctor in giving him a true statement of fact The doctor of course is dependent upon his true relating of these facts in making the medical certification to our department upon which we rely in permitting this person to continue to operate a motor vehicle on our highways

A breakdown of what has happened during the past eight years, shown in the table, is quite significant In most instances the persons denied licenses had been reported by their own physicians as not having their condition adequately controlled There were also instances in which the applicant was too emotionally unstable for certification There were several instances in which the board felt that the applicant should be given a limited area privilege In all instances there was excellent cooperation between physicians and the motor vehicle department In each situation the motor vehicle department has accepted the advice of the physicians on the review board An interesting sidelight that occurred in the beginning of the review board sessions was the appearance of attorneys with the applicant to be certain that he would have a "fair deal The two physicians were put in the embarrassing position of being trial judge advocates and felt quite awkward in going about their duties

Progress in Licensing of Epileptics During Past Eight Years

Number currently under the 6 mo certification	531
Withdrawn after medical certification but included in the program for at least 2 yr—later issued permanent licenses	22
Total number of persons reviewed by the motor vehicle department and the medical review board	553
Licenses granted after review before the medical review board	136
Licenses later granted to those denied by medical review board by virtue of 2 yr clause	36
Licenses granted under 2 yr clause	381
Total granted	553
Licenses denied after review by the medical review board	96
Cases deferred because of lack of control or upon the advice of patient s physician	24
Cases appearing at least twice before the medical review board	92
Cases diagnosed as epilepsy later rediagnosed as not epilepsy by certification of physician	4
Accidents in past 8 yr	1

Some physicians have felt that patients who have isolated periods of syncope in the course of heart disease, hypoglycemia, vasomotor disease, and other conditions would be classified as epileptic, prejudiced, and subject to restrictive driver's licenses There is no universal definition of epilepsy We and Dr William Lennox have felt that a reasonable definition could be as follows "Episodic, recurrent, limited periods of altered consciousness with or without involuntary movements, not the result of bodily disorders such as failure of the circulation, low blood sugar, emotional disturbance, or use of soporific drugs or intoxicants" It is important to note, however, that patients who might have loss of consciousness during the course of a disease should not drive a motor vehicle until their condition is controlled During the past eight years there has never been a single incident in which a person has been required to submit to a medical form from the motor vehicle department in which the seizures have not been diagnosed by the physician as being epileptic in nature

The epileptic driver's licensing law in Wisconsin has been demonstrated as a successful venture in *social medicine As in all such ventures*, success requires eternal vigilance from the referring physicians and the medical review board

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FLIGHT FROM HUNGARY

To the Editor —I am a Hungarian physician who arrived in the United States only a short time ago Since I have been here my heart is full of praise for the wonderful way in which America and our American colleagues have received us My thoughts, however, always return to the dark days of the Hungarian revolution, to my flight from Hungary because my life was in danger there, and to my arrival in Vienna

This letter to you is expressly intended to thank the American medical societies and the American colleagues for the wonderful way in which they helped us over the first shock of having fled from our native country We arrived in Vienna penniless, numb with shock, and absolutely at a loss to determine what to undertake in carrying on with the everyday necessities of life and living

In Vienna we were immediately directed to the American Medical Society, where we received an adequate sum of money, but what was more important, kind words, understanding, and instructions as to how to apply for emigration and establish ourselves in Vienna until that time when we could emigrate to America The American Medical Society in Vienna told us that the money which they regularly gave us was received from the American Medical Association, from various American medical societies, and from hundreds of American colleagues who had sent funds to specifically help us

To all of our colleagues here in America who gave me new courage and made my emigration possible, I take this means of profoundly thanking you I also hope that Mrs Engel of the American Medical Society in Vienna can read these words, so that she can know how thankful I am to her and the Viennese doctors who received us so cordially and gave us the courage to begin life again in this country I shall, however, never forget the wonderful treatment we received in Vienna which was made possible by the humane thoughtfulness of American physicians

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LAW DEPARTMENT

MEDICOLEGAL ABSTRACTS

Constitutionality of Texas Naturopathic Act —This was an action by the state board of naturopathic examiners for a declaratory judgment as to the constitutionality of the Naturopathic Act From a judgment upholding constitutionality, the Attorney General appealed to the court of civil appeals of Texas

Article 4510 of the Texas Statutes provides 'Any person shall be regarded as practicing medicine within the meaning of this law (1) Who shall publicly profess to be a physician or surgeon and shall treat, or offer to treat, any disease or disorder, mental or physical, or any physical deformity or injury, by any system or method, or to effect cures thereof, (2) or who shall treat or offer to treat any disease or disorder, mental or physical or any physical deformity or injury by any system or method and to effect cures thereof and charge therefor, directly or indirectly, money or other compensation ' The Naturopath Act defines the practice of naturopathy as "that philosophy and system of the healing art embracing prevention, diagnosis, and treatment of human ills and functions by the use of several properties of air, light, heat, cold, water, manipulation with the use of such substances, nutritional as are naturally found in and required by the body, excluding drugs, surgery, X-ray and radium therapy, and the use of X-ray equipment' The latter act further provides Nothing in this Act shall be construed to be authority for any naturopath, licensed hereunder, to practice medicine as defined by the laws regulating the practice of medicine in this State " In the opinion of the court it was obvious both that the practice of medicine included the practice of naturopathy and that the practice of naturopathy, as so defined, is the practice of medicine but is limited to certain means and excludes specific means The Naturopathy Act attempts to both grant and deny to those complying with its terms the privilege of practicing medicine as that term is defined by the statutes of the state It is, therefore, impossible of interpretation and enforcement, concluded the court, and is wholly void

The court continued, even if the Naturopathy Act should be construed as authorizing the practice of medicine in a specialized field, however, it is still void because it is violative of article XVI, section 31 of the Texas Constitution, which provides The Legislature may pass laws prescribing the qualifications of practitioners of medicine in this State, and to punish persons for mal-practice, but no preference shall ever be given by law to any schools of medicine"

The Medical Practice Act sets forth rigorous prerequisites that must be met by those desiring to obtain a license to practice medicine It fixes citizenship and age qualifications, describes standards for medical schools, and sets forth the subjects in which applicants for a license must be examined The Naturopathic Practice Act similarly sets forth the licensure requirements for naturopaths In the opinion of the court of appeals, however, the differences between the requirements of the Medical Practice Act and those of the Naturopathy Act are both apparent and substantial The requirements of the Medical Practice Act are more burdensome than those of the Naturopathy Act In the Naturopathy Act, an unconstitutional preference was attempted in favor of that school of medicine, and this act is, therefore, inoperative and void Accordingly, the judgment of the trial court upholding the constitutionality of the Naturopathic Act was reversed, and the act was held to be unconstitutional and void *Wilson v State Board of Naturopathic Examiners, 298 S W (2d) 946 (Texas, 1957)*

Malpractice Sponge Left in Patient's Intestine After Operation —This was an action for damages against the defendant hospital for injuries allegedly caused by the negligence of its agents From a judgment in favor of the plaintiff, the defendant appealed to the court of appeals of Tennessee

The plaintiff was admitted to the defendant hospital and put himself in the hands of the resident medical staff for examination and treatment The resident medical staff consisted of a group of physicians who practiced under a partnership arrangement, had their offices in the hospital, and did the medical and surgical work for those patients who entered the hospital not under the supervision of a private physician

After examinations by the resident staff, the plaintiff submitted first to a mastoidectomy and then to an abdominal operation The plaintiff consented, and both the operations were performed by a member of the staff The nurse, an employee of the hospital, who assisted in the abdominal operation, however, made an error in the sponge count and a sponge was left in the plaintiff's intestines It was removed in another operation three months later

The defendant contended that the trial court erred in refusing to direct a verdict for it, arguing that the surgeon, in performing the operation, was acting as an independent contractor and not as its agent The court of appeals said that ostensible authority is such authority as a principal intentionally or by want of ordinary care causes or allows a third person to believe the agent to possess It may be conferred if the principal affirmatively or intentionally, or by lack of ordinary care, causes or allows third persons to act on an apparent agency It is essential to the application of this general rule that two facts be clearly established (1) that the principal held the agent out to the public as possessing sufficient authority to embrace the particular act in question or knowingly permitted him to act as having such authority, and (2) that the person dealing with the agent knew of the facts, and, acting in good faith, had reason to believe, and did believe, that the agent possessed the necessary authority The court said that there was sufficient evidence to support a finding that the surgeon, in performing the operation, was acting as the agent of the defendant

The resident staff members of Madison Sanitarium and Hospital practice medicine under an association or partnership, styled Madison Associated Physicians The defendant corporation owned and operated the sanitarium The resident medical staff of the hospital operated under the name of Madison Associated Physicians," with offices in the hospital, and they actually did the medical and surgical work for the patients at the hospital One of them was the medical director of the hospital When the plaintiff went to the hospital, he announced he wanted to enter the hospital for examination and treatment He was referred to the medical director, who examined him and then had him examined by the specialists on the resident staff The plaintiff did not know any of these doctors He thought of them as the Madison Sanitarium and Hospital doctors, and we think very reasonably so

The court of appeals said, however, that the defendant hospital was liable even if it could be said that the surgeon was not acting as its agent Many acts of a nurse, during an operation, do not result from orders of a physician, for example, furnishing proper personnel and equipment for an operation are duties of the hospital Counting the sponges, so as to see that no sponge is left in the patient's body, requires no special skill or decision of the surgeon Expert testimony is not necessary to establish that leaving the sponge in the plaintiff's body is negligence, any layman would know that Since there was evidence to support a finding that the nurse and surgeon were both agents of the defendant in performing this operation, the hospital cannot escape liability for their negligent acts

Other contentions of the defendant were also overruled, and the judgment in favor of the plaintiff was accordingly affirmed *Rural Educational Association v Bush, 298 S W (2d) 761 (Tenn , 1956)*

Malpractice Allergy to Adhesive Tape—This was an action for damages allegedly caused by the malpractice of the defendant, an orthopedic surgeon From a judgment for the plaintiff, the defendant appealed to the Supreme Court of Errors of Connecticut

The plaintiff, while working at a foundry, injured his back so that he could not straighten up He was taken home and then removed to a hospital, where the defendant was called into the case by his family physician as an orthopedic consultant The defendant found the plaintiff lying in bed in an awkward position which he assumed was part of the plaintiff's clinical picture The plaintiff was free from pain as long as he lay absolutely still The defendant diagnosed the plaintiff s injury as a ruptured intervertebral disk and advised that he be put in traction, a procedure in which weights are suspended at the foot of the bed in such a manner as to exert a pull on the spine through the use of adhesive strips attached to the patient's leg The purpose of traction is to increase the intervertebral space in order that the extruded disk may slip back into its proper position Both the plaintiff and his physician informed the defendant that the plaintiff was allergic to adhesives The defendant therefore told the plaintiff that he would use a moleskin, a soft cloth-like substance with adhesive to it, to which the plaintiff replied, "It s still tape, regardless of whatever it is, it s still tape' Without even waiting for the plaintiff's leg to be shaved, the defendant applied the moleskin in two strips along the sides of the leg, telling the nurse to remove it if the plaintiff felt any itching or burning sensations During the night, the plaintiff complained to the nurse of pain and discomfort in the leg, and related the same to the defendant the next morning The defendant, however, applied more traction to the leg and tightened the moleskin, telling the nurse to take it off if the plaintiff had any further trouble with it Later in the day the pain became so intense that the plaintiff asked the nurse to remove the moleskin The nurse started to remove it but became so nauseated that she had to stop The plaintiff completed the job, but in doing so took off his own skin, leaving his leg looking like raw meat His physician was summoned and treated the leg until the defendant was discharged During this time the leg remained raw looking and caused the plaintiff considerable pain Soon after traction was stopped, the pain ceased and the plaintiff was released from the hospital Some four months later, after having returned to work, the plaintiff had another painful episode with his back and the disk was removed by another surgeon The plaintiff's medical expert testified as follows Traction is an approved treatment of back injuries of this type, alternative treatments are surgery, manipulation, and absolute bed rest under sedation, of which the last mentioned is the most conservative, if the patient suffers severe pain, it is good practice to put him in traction even at the risk of his developing dermatitis from a known allergy to adhesive, since it might be better to chance dermatitis if bed rest or manipulation could not be tolerated and if surgery, with its attendant risk of death, was not indicated, if, on the other hand, the patient is not in severe pain, it would not be proper treatment to apply traction with the attendant danger of dermatitis

The sole question on the appeal was whether there was sufficient evidence of malpractice to justify the submission of the case to the jury To impose liability, said the Supreme Court of Errors, it was necessary for the jury to reach the conclusion that the defendant in doing what he did, as disclosed by the facts, failed to exercise the care, skill, and diligence ordinarily exercised by other surgeons engaged in the same line of practice in the same general neighborhood The jury, not being skilled in medical and surgical methods, must depend upon expert testimony to arrive at its verdict but it must not cull statements from the testimony of the expert which in and of themselves are not complete but are dependent upon other testimony The jury in the instant case was confronted with the necessity of determining whether the plaintiff was in severe pain when the defendant decided to apply the traction If it found, as it had a right to do on the evidence, that the plaintiff was suffering no pain at all at the time, it would be justified in accepting and using the expert testimony that traction, in the absence of pain on the plaintiff's part and in view of his known allergy to adhesives in any form, was not in accord with the approved practice pursued by orthopedic surgeons in the same neighborhood

The Supreme Court of Errors therefore found that the case was properly submitted to the jury and the judgment in favor of the plaintiff was affirmed *Decho v Shutkin, 127 A (2d) 618 (Conn , Dec , 1956)*

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Myxoma of the Left Atrium Report of a Case K Lekisch Ann Int Med 46 982-990 (May) 1957 [Lancaster, Pa]

The author describes a case of genuine myxoma of the left atrium in a 54-year-old woman who died about 1 year from the onset of symptoms The absence of any type of murmur and the presence of low-grade fever and anemia led to many unsuccessful clinical investigations Roentgenographic examination of the chest revealed definite bilateral hilar lymphadenopathy and a fine interstitial infiltration extending out from both hilar regions into the periphery of the lung field There was a small amount of pleural fluid at the left base and a widening of the left perivertebral line in the lower portion of the mediastinum, which could represent tumor or fluid Roentgenograms taken 3 months later revealed some fluid at the right base also An electrocardiogram revealed low voltage and right axis deviation A diagnosis was entertained of a lymphatic spread of metastatic carcinoma throughout both lung fields originating from adenocarcinoma of the right breast, for which the patient had undergone right radical mastectomy 14 years previously Treatment with 50 mg of testosterone 3 times a week for 4 weeks was unsuccessful The patient then was given 0.5 mg of gitalin daily and 0.1 mg of thyroxin daily, without improvement, and her condition deteriorated gradually until death occurred The diagnosis of myxoma of the left atrium was established on autopsy

The symptoms and signs were thought to have resulted from mechanical interference with entrance of blood into the left side of the heart and to back pressure in the lungs and the right side of the heart The chest films were compatible with a severe, progressive pulmonary congestion, and electrocardiographic tracings reflected a pattern of strain on the right side of the heart It is suggested that with these findings, coupled with persistent, progressive cardiac insufficiency, entirely unresponsive to treatment, an intracardiac tumor should have been suspected Neither conventional roentgenography nor electrocardiographic tracings were helpful in establishing the diagnosis of atrial myxoma Reports by other workers revealed angiocardiography as a specific aid to diagnosis in such cases Angiocardiography is urgently advised, since this type of tumor now can be successfully removed and represents one form of curable heart disease

Cor Triloculare Biatriatum D Heath Circulation 15 701-712 (May) 1957 [New York]

Cor triloculare biatriatum is a rare form of congenital heart disease that needs to be considered in the differential diagnosis of patients with cyanotic congenital heart disease with pulmonary hypertension The clinical and pathological features including histological changes in the small pulmonary blood vessels, of a patient with cor triloculare biatriatum are recorded together with the results of investigations The patient, a woman of 23 years presented with signs of cyanotic congenital heart disease with pulmonary hypertension Her main complaints were dyspnea on exertion and ankle edema The electrocardiogram indicated right ventricular preponderance and the teleradiogram showed a globular cardiac silhouette without prominence of the pulmonary conus Angiocardiography showed a considerable shunt of blood passing from the right side of the heart into the aorta An erroneous diagnosis of Fallot's tetralogy was made, and a Blalock-Taussig operation was performed At autopsy, the main pulmonary artery was found to be dilated and transposed, arising from the main cavity of the common ventricle, while a small aorta arose from a rudimentary ventricular chamber The small pulmonary blood vessels showed certain features of hypertensive pulmonary vascular disease together with evidence of increased bronchial artery collateral circulation to the lung The clinical and pathological findings are discussed in a review of previously reported cases

Trends in Cardiovascular Syphilis A Rimsa and G C Griffith Ann Int Med 46 915-924 (May) 1957 [Lancaster, Pa]

Of 954 patients, 723 men and 231 women, 612 white and 342 colored with cardiovascular syphilis, 521 (54.6%) died in the course of 10 years Of the 521 patients, 84% died in the first 5 years after diagnosis The average age of the patients at the time of death was 62.3 years During the 10-year period the incidence of cardiovascular syphilis decreased about 47%, but, despite its decreasing incidence, the disease remained a serious threat to life and health Of the patients studied 26.8% had syphilitic aortitis, 49.5% had syphilitic aortic insufficiency, 9.3% had syphilitic aortic insufficiency associated with syphilitic aortic aneurysm, and 14% had syphilitic aortic aneurysm The most common complication was congestive heart failure, followed by hypertension and angina pectoris

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The place of publication of the periodicals appears in brackets preceding each abstract

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Reactions of the patient's blood to serologic tests for syphilis were positive or repeatedly doubtful in 82% of the patients studied Radiologic findings were normal in only 8 8% of 633 patients who were examined Normal electrocardiograms were obtained in less than 4% of the patients examined No electrocardiographic pattern pathognomonic of cardiovascular syphilis was noted

Penicillin was confirmed as the drug of choice for the treatment of cardiovascular syphilis Progression of cardiovascular lesions was halted, as evidenced by radiologic examination Untoward reactions to penicillin therapy were less frequent than those to treatment with adequate doses of bismuth and/or arsenic compounds Prognosis as to long-time survival was best in the patients under 39 years of age

Acute Massive Digitoxin Poisoning Report of a Case and Review of the Literature G G Bergy, E B Fergus and R A Bruce Ann Int Med 46 964-976 (May) 1957 [Lancaster, Pa]

Paroxysmal auricular tachycardia with auriculoventricular block was observed in a 61-year-old woman who ingested 7 5 mg of digitoxin in a suicide attempt The usual manifestations of profound nausea and vomiting were observed, as well as toxic delirium and an excessive renal excretion of nitrogen, followed by fever, pyuria, and azotemia Death occurred on the 13th day and was due to bronchopneumonia and uremia rather than to cardiac effects No significant myocardial changes were observed at autopsy Seven additional cases of acute massive digitalis poisoning were collected from the literature, and the death of only 1 of these patients was caused by the direct action of the drug, a case fatality rate of 13%

Potentiation of the Effects of Cardioactive Drugs by Chlorpromazine (Largactil) in Cardiovascular Diseases F Cavazzuti and M Cristini Minerva med 48 848-857 (March 14) 1957 (In Italian) [Turin, Italy]

Forty-nine patients with heart failure were treated with chlorpromazine or with chlorpromazine combined with other drugs (digitalis, quinidine, procaine) The patients were divided into 3 groups The first group was composed of 30 patients with neuropsychic erethism, easy emotivity, restlessness, and anxiety Valvular defects were found in 18 patients and myocardial sclerosis in 12 Symptoms of cardiovascular decompensation had already appeared in most of the patients A dose of 150 mg of chlorpromazine (100 mg given intravenously and 50 by mouth) was combined for from 7 to 15 days with the cardiac stimulants that the patients were already receiving The drug was always tolerated well and did not cause untoward side-effects Restlessness and anxiety were checked markedly The authors think that the toleration of digitalis was improved by chlorpromazine in some patients in whom digitalis had had a toxic effect Chlorpromazine had a marked beneficial effect in 21 patients Poor results were obtained in 2 patients with myocardial sclerosis who had had a fibrillating tachyrhythmia for a long time Association of chlorpromazine with cardiocinetic drugs caused disturbance of the rhythm in 2 patients and caused more insufficiency and restlessness in the other 2

Chlorpromazine had a beneficial effect on a second group of 5 patients with neurovegetative imbalance that in part was the cause of acute cardiovascular insufficiency The drug diminished the frequency and intensity of certain symptoms that had so far prevented the restoration of equilibrium in the circulation The patients of the third group (15) had cardiovascular insufficiency and were treated with chlorpromazine alone Six patients had mitral stenosis and regurgitation, 2 pure mitral stenosis, 1 combined mitral aortic lesion, 3 myocardial sclerosis, 2 hypertensive cardiopathy, and 1 a chronic cor pulmonale During the treatment the patients were kept in a quiet environment A dose of 150 to 250 mg of chlorpromazine per day was administered partly intravenously and partly by mouth for from 10 to 15 days Very good results were obtained in 1 patient with a combined mitral aortic lesion, in 2 with mitral stenosis and insufficiency, in 1 with chronic cor pulmonale, and in 1 with myocardial sclerosis

Hemodynamics of the Kidney in Cardiocirculatory Decompensation Before and After Prolonged Fasting Treatment M Cristini and G Petrin Cuore e circolaz 41 33-45 (Feb) 1957 (In Italian) [Rome]

The authors studied the renal function of 18 patients 24 to 73 years of age with different cardiopathies in a state of congestive decompensation Twelve patients were male and 5 female, the sex of 1 patient is not given The renal function was studied before and after a prolonged fasting treatment The patients were subjected to fasting for a period of from 5 to 8 days, were given large quantities of water to drink, and were kept in bed Sedatives were administered to a few patients at the beginning of the treatment Remission of the decompensation occurred in 16 patients, and the renal functions of these patients returned to almost normal values The treatment had little beneficial effect on 2 patients, the renal function of these patients showed little improvement A study made on 4 additional patients showed that the first and most important change takes place in the tubular resorption The glomerular filtration and the renal plasma flow tend to return to normal values at a later time near the end of the treatment The diuresis increases markedly during the 3rd and 4th days of fasting

Amyloidosis Its Clinical and Pathologic Manifestations, with a Report of 12 Cases G L Bero Ann Int Med 46 931-955 (May) 1957 [Lancaster, Pa]

The authors report on 12 cases of amyloidosis which occurred in men between the ages of 18 and 57 years Three patients were considered to have primary amyloidosis and 9 secondary amyloidosis Of the 3 cases of primary amyloidosis, 1 was related to multiple sclerosis, an association not previously reported, 1 was not verified since autopsy was not permitted, and only 1 filled all the requirements for the diagnosis of primary amyloidosis Of the 9 secondary cases, 3 occurred in patients with arthritis, 2 of whom had the progressive disabling form of rheumatoid arthritis Amyloidosis was associated with Hodgkin's disease in 2 patients, with infections occurring in traumatic paraplegia in 2 others, and with tuberculosis and carcinoma in 1 each Nine of the 12 patients died of amyloidosis and 3 of the underlying disease

Complete autopsy was done in 10 patients, and the Congo red test established the diagnosis in 8 of the 10 All the patients had evidence of renal disease, and 5 had renal tubular acidosis and died of amyloidotic insufficiency of the kidneys Two patients had adrenal cortical insufficiency caused by amyloidosis, both responded clinically to cortisone therapy and both had Addisonian crises in association with withdrawal of cortisone Hepatic function was altered in all patients, and 1 patient had jaundice The chemistry of the hepatic disturbance closely resembled that of obstructive hepatic disease Involvement of the vascular tree led to thrombotic episodes in 2 patients and to massive hemorrhage in 3 Gastrointestinal hemorrhage and diarrhea were observed as evidence of intestinal amyloidosis Septicemia occurred in 4 patients Despite the significant incidence of renal disease, hypertension was not observed Amyloid, in essence, must produce restrictive involvement of the myocardium Amyloid heart disease was the cause of death in 1 patient and may well have been the cause of the electrocardiographic changes suggesting infarction Death was caused by amyloid involvement of other organs in a second patient with amyloid heart disease A suggestive relationship was noted between the appearance of amyloidosis and the use of nitrogen mustard in 1 patient with Hodgkin's disease

Reserpine Therapy Producing Massive Gastric and Duodenal Hemorrhage A T St James and A J Ryan Connecticut M J 21 418-419 (May) 1957 [New Haven]

Reserpine has proved of great benefit in hypertension and in certain disturbed emotional states It is, however, a two-edged sword Given either parenterally or orally, reserpine produces an increase in total gastric secretion and free hydrochloric acid The authors present the case of a 71-year-old housewife who was hospitalized with a complaint of vomiting coffee-ground material As a young woman she had suffered from mild, chronic indigestion, but a diagnosis of ulcer was never made She was known to have moderate hypertension for about 7 years Four years ago she suffered a cerebral accident, which impaired her mental faculties and coordination but did not result in paralysis For the past 2 years she had been taking reserpine in the form of the powdered whole root in a dose of 100 mg twice daily This exerted a moderately favorable effect on her blood pressure It also appeared to accentuate mental depression Shortly after arrival in the hospital she vomited about 500 cc of bright red blood On operation, an area of ulceration was found on the anterior wall of the first portion of the duodenum The partial gastric resection was carried out, with removal of the distal three-quarters of the stomach and creation of a gastrojejunostomy anterior to the colon Pathological examination of the resected specimen revealed multiple areas of superficial ulceration of the gastric mucosa The authors believe that these were secondary to a state of hyperacidity The administration of reserpine was not resumed after the operation The side-effects of reserpine should be remembered There is particular need for caution in patients with a history of peptic ulcer

Systemic Lupus Erythematosus A Report on Twelve Cases Treated with Quinacrine (Atabrine) and Chloroquine (Aralen) S K Conner Ann Rheumat Dis 16 76-81 (March) 1957 [London]

Quinacrine hydrochloride (Atabrine) was given to 11 patients with systemic lupus erythematosus and chloroquine phosphate (Aralen) to 1, and all patients were observed for 4 to 32 months Five patients were first placed on steroid therapy for 2 or 3 days Treatment with Atabrine was then started, and steroid therapy was discontinued as rapidly as possible Atabrine without steroid therapy was given to 6 patients The incidence of complications arising from the use of Atabrine is low and consists chiefly of various skin eruptions They are not necessarily serious, but the discomfort to the patient may be severe and rather prolonged Less frequent complications occurred, such as toxic psychosis, polyneuritis, granulocytosis, aplastic anemia, hepatitis, and minor symptoms of nausea, flatulence, diarrhea, and vomiting Symptoms of systemic lupus erythematosus were controlled in one patient by chloroquine phosphate therapy Pregnancy in a patient was associated with exacerbation of the symptoms The administration of Atabrine had no untoward effect on the fetus and controlled minor exacerbations Atabrine proved to be superior to steroid therapy in the treatment of systemic lupus erythematosus with respect to life expectancy, complications, and morbidity When Atabrine is used combined with steroid therapy, better results may be obtained if steroid therapy is given to control the severe, acute manifestations and then is withdrawn within 2 to 4 weeks Multiple L E -cell tests should be performed at frequent intervals to obtain a higher percentage of positive findings in suspected cases of systemic lupus erythematosus

Alcohol Test in Hodgkin's Disease C Trimarco Policlinico (sez prat) 64 217-219 (Feb 8) 1957 (In Italian) [Rome]

Twenty-three patients with Hodgkin's disease received 25 cc of cognac on an empty stomach and were kept under observation for 2 hours Increase of the pain in the granulomatous areas occurred in 5 patients, only 1 of whom had been subjected to roentgen treatment Four of the 18 patients in whom the test gave negative results had never received roentgen treatment Five patients were injected with 20 cc of ethyl alcohol at 26% 48 hours after the injection of cognac The results of this test were similar to the results obtained in the first test The pain occurred always 15 minutes after the administration of the alcohol and was very acute in 2 patients The author thinks that the test is useful to find out the effect of roentgen therapy in patients who have been submitted to it

Peripheral Vascular Obstruction in Rheumatoid Arthritis and Its Relationship to Other Vascular Lesions E G L Bywaters Ann Rheumat Dis 16 84-103 (March) 1957 [London]

An unusual type of peripheral arterial obstruction has been found in 10 patients with rheumatoid arthritis The patients showed vessel obliteration associated with symptoms ranging from small infarcts, presenting as brown lesions of the nail-fold, nail-edge, or digital pulp, to gangrene of all 4 limbs with visceral lesions These findings are not likely to be due to periarteritis nodosa or thromboangiitis obliterans, but they resemble those seen in scleroderma and lupus erythematosus Autopsy of the 2 patients who died revealed that the distribution of the lesions is similar to those in generalized visceral periarteritis nodosa but the morphological character of the lesion is generally quite distinct, being a bland intimal proliferation of fibroblasts and mucoid material, sometimes with secondary fibrin clots on it Rheumatoid arthritis and acute lupus erythematosus, however, are similar in many respects The prognosis of these 10 patients is that of rheumatoid arthritis in the classic sense This is important for the practical purpose of treating the patient and advising his relatives The condition of the patients did not appear to be improved by cortisone

SURGERY

Duodenal Ulcer Treatment by Vagotomy and Removal of the Gastric Antrum L W Edwards, J L Herrington Jr, S E Stephenson Jr and others Ann Surg 145 738-752 (May) 1957 [Philadelphia]

Of 324 patients, 272 male and 52 female, between the ages of 15 and 77 years with duodenal ulcer, who were operated on at 3 different hospitals, 13 died, an operative mortality rate of 4% Forty-two patients had significant complications The most frequently observed complication was delayed gastric emptying, which occurred in 11 patients Complete follow-up data were available in 294 patients Combined excellent and good results were obtained in 267 patients (90 8%), who became entirely free of symptoms referable to the gastrointestinal tract or occasionally noted mild dumping symptoms or transient abdominal fulness, fair results were obtained in 19 who had intermittent to persistent abdominal discomfort or moderate to severe dumping symptoms, and poor results were obtained in 8 who had persistent abdominal symptoms to such a degree that they were not able to work full time and were not considerably improved as compared with their preoperative status Vagotomy and antrectomy with a classic Billroth 2 type of gastrointestinal reconstruction was performed in 141 of the 294 patients and gave, in general, excellent results Vagotomy and antrectomy with gastroduodenostomy (Billroth 1) was performed in 42 patients, and with increasing frequency in the last 2 years The follow up period was limited and the number of patients admittedly small in this group, but the results at present appear very satisfactory The Hofmeister type of reconstruction was used in 88 patients, with no unsatisfactory results Reconstruction of continuity with the Polya anastomosis was performed in only 23 patients but yielded very good results

Thus, the classic Billroth 2 gastrojejunostomy was employed with greater frequency in this series than any other method of reconstruction, but at present the authors prefer the Shoemaker modification of the Billroth 1 anastomosis (end-to-end gastroduodenostomy) combined with antrectomy and vagotomy To insure complete removal of the gastric antrum, an estimated resection of the distal 40% of the stomach was carried out It is felt that combined vagotomy and antrectomy is a very satisfactory procedure for the surgical treatment of duodenal ulcer Results thus far have been superior to those obtained with "adequate" subtotal resection, and no case of marginal or recurrent ulcer has occurred A larger clinical experience and longer follow-up study will, however, be necessary to assess the ultimate value of the operation

Five-to-Ten-Year Follow up of 162 Cases of Duodenal Ulcer Treated by Vagotomy With and Without Associated Gastric Operations W Walters and J E Mobley Ann Surg 145 753-757 (May) 1957 [Philadelphia]

Of 209 patients with duodenal ulcer in whom vagotomy was performed between Jan 1, 1945, and Jan 1, 1950, 162 (78%) were followed up for from 5 to 10 years after the operation One hundred forty four (89%) of the 162 patients were men and 18 (11%) were women between the ages of 19 and 72 years Recurrences were confirmed by x-ray examination in 23 (14%) of the 162 patients Fifteen of the 23 recurrent ulcers were jejunal ulcers at the site of the gastroenterostomy Subtotal gastric resections of Billroth 2 type were performed in 15 of these 23 patients, with excellent results in 12, satisfactory results in 2, and poor results in 1 Fourteen (9%) of the 162 patients had died since the operation, and deaths were unrelated to duodenal ulcer in 10, causes of death were unknown in the remaining 4 Fifty-three (33%) of the 162 patients were asymptomatic, 67 (41%) were improved, and 5 (3%) were therapeutic failures Combined excellent and satisfactory results thus were obtained in 120 patients (74%) Significant postoperative loss of weight occurred in 6 6% and severe dumping symptoms in 2 4%, making a total of 9% Vagotomy alone was performed in 28 patients, and 7 (25%) of these had recurrences Eleven (39%) of the 28 patients were found to be asymptomatic, with an excellent result, and 7 (25%) were improved, with a satisfactory result Of 123 patients who had a gastroenterostomy at the time of vagotomy, 16 (13%) had recurrences Of the living patients without recurrence in this group, 40 (33%) were asymptomatic (excellent results) and 53 (43%) were improved (satisfactory results) Total excellent and satisfactory results thus rose to 76% in the patients with combined vagotomy and gastroenterostomy

Twenty five Years' Experience with Billroth I Gastric Resection G W Horsley and W C Barnes Ann Surg 145 758-769 (May) 1957 [Philadelphia]

The Horsley modification of the Billroth 1 gastric resection, which unites the stomach with the duodenum along the lesser curvature, was performed since 1929 on 271 patients, of whom 110 had duodenal ulcers, 97 had gastric ulcers, 63 had carcinoma of the stomach, and 1 had carcinoid of the stomach Of 102 patients with duodenal ulcer who were followed up, 70 (69%) reported excellent results, 14 (14%) good results, and only 6 (6%) therapeutic failures Of the 12 patients who died in the postoperative period, 3 died before 1940, 8 died between 1940 and 1946, and only 1 died since 1946 Lack of nursing personnel and unavailability of antibiotics were the factors responsible for the high death rate up to 1946 Of the 97 patients with gastric ulcers operated on, 89 were followed up and of these 71 (80%) reported excellent results, 8 (9%) good results, and only 4 (4 5%) therapeutic failures Six of the patients in this group died in the postoperative period and all of them between 1940 and 1946 Sixty-two of the 63 patients with carcinoma of the stomach were followed up Although the postoperative death rate was high in these patients, most of whom had palliative resections, 24 (29%) survived for 3 years, 11 (18%) survived for 5 years, 5 (8%) for 10 years, 3 (4 8%) for 15 years, and 1 (1 6%) for 20 years

The Horsley modification of the original Billroth 1 operation presents a widely applicable procedure for surgical treatment of gastroduodenal disease and offers a more physiological approach than other types of partial gastrectomies, since it preserves the function of the duodenum as a normal mixing chamber of the contents of the stomach, and also there is less danger of leakage of the anastomosis With good to excellent results obtained in 89% and 83%, respectively, of patients with gastric or duodenal ulcer, these patients maintained their weight and marginal or recurrent ulcers were minimal As the patients were followed up to 27 years, it is felt that they will not have later complications

Attempts at Revascularization of the Heart by Means of Ligation of the Internal Mammaries A Ferrari and L Ballaira Minerva chir 12 197-199 (March 15) 1957 (In Italian) [Turin, Italy]

Revascularization of the heart by ligation of the 2 internal mammary arteries was tried by the authors in 8 subjects 55 to 69 years old, 6 male and 2 female The patients suffered frequent attacks of angina pectoris Four patients had already suffered one episode of infarct Five cubic centimeters of novocaine was injected in the second intercostal space of either side Significant cardiographic changes were not observed Six patients suffered precordial pain 2 to 3 hours after the injection The ligation was carried out in 2 patients first on one side and 10 days later on the other The remaining patients were subjected to a bilateral intervention Anesthesia was obtained with pentothal The internal arterial mammary was found always in the second intercostal space It was resected after a double ligation There were no postoperative complications The patients were dismissed from the hospital 1 month after the operation The operation had a good effect on the subjective condition of half of the patients Relevant electrocardiographic changes were not observed Signs of myocardial insufficiency made necessary the administration of vasodilator and cardiocinetic substances to the patients The authors think that ligation of the internal mammary arteries is not effective in bringing about revascularization of the heart The ligation has a beneficial effect on the blood supply of the myocardium, but the quantity of blood that can be thus obtained is not sufficient for a lasting beneficial effect

Errors and Failures in Plastic Abdominal Operations with Use of Tantalum Mesh M Della Corte Policlinico (sez prat) 64 436-439 (March 25) 1957 (In Italian) [Rome]

Tantalum mesh was used by the author in plastic abdominal operations in 22 patients 18 of whom were observed 3 years after the operation No particular complications occurred in the period immediately after the operation A moderate serosanguineous secretion occurred in a few patients, but it disappeared in a few days Marked hematoma due to imperfect hemostasis occurred in only 1 patient Inflammation or sup puration of the wound was not observed Ten of 14 patients operated on for hernia were among the 18 patients observed 3 years after the operation Eight of these did not complain of any symptoms, and the abdominal wall was found to be solid The other 2 patients operated on for inguinal hernia complained of severe pain in the place where the mesh had been placed The mesh had to be removed in 1 patient, the other patient died of myocardial infarction Imperfect hemostasis delays wound healing, hence, the mesh is likely to shrivel in the immediate postoperative period and the operation results in a failure The author advises against the use of absorbable material in placing the mesh in the tissues In operative repair of inguinal hernia it is necessary to prevent the nerves from becoming entangled in the interspaces of the mesh The author believes that the breaking of the mesh is often due to failures that are not related to the technique of the operation

Coarctation of Aorta Preliminary Results in 44 Cases Operated On O L Olesen Danish med bull 4 33-44 (March) 1957 (In English) [Copenhagen]

Of 67 patients with coarctation of aorta admitted to the University Hospital, Copenhagen, from 1948 to August, 1953, 4 died from insufficiency during hospitalization Forty-four were operated on in the department of thoracic surgery, and operation has been planned for 5 more Contraindications were mainly old age, severe insufficiency, and complicating diseases In 2 patients, aged 4 and 8 respectively, the patent duct was closed and resection postponed, in 42 resection was done The preoperative diagnosis proved correct Seven patients died postoperatively, 6 from hemorrhage and 1 from heart failure Of the 7 patients over 30, only 1 died Heart failure and arteriosclerotic changes, often recognized only during resection, increase the risk of the operation Different methods of anesthesia are not believed to affect the frequency of complications In 27 patients operated on later 3 deaths occurred, 1 of them after an exploratory thoracotomy In the 2 grafting operations in the series, 1 monograft and one nylon graft, the results were good

NEUROLOGY & PSYCHIATRY

Research on the Etiological Definition of Meningoencephalitis of Marche Carried out During the Epidemic Outbreak of Summer and Autumn 1955 I Archetti, A Felici F Russi and C Fua Policlinico (sez prat) 64 224-234 (Feb 8) 1957 (In Italian) [Rome]

One hundred fifty-one children and 149 adults living in the Marche region (central Italy) had meningoencephalitis during the summer and autumn of 1955 The authors studied the etiology of this epidemic on 47 strains from cerebrospinal fluid, 41 from throat washings, and 45 from stools The strains were tested serologically and turned out to be all identical and classifiable under the Coxsackie group A viruses Neutralization test showed that the strain did not belong to any of the 19 types strains of Coxsackie group A virus strains that are known The disease was characterized by a diphasic course The signs of the first period were influenza with general indisposition, anorexia, rheumatoid pain, rhinopharyngitis, and little or no fever This first period lasted for from 5 to 8 days The second period was characterized by fever, headache, and vomiting The fever lasted an average of 5 days, the meningitis lasted an average of 25 days Hepatomegaly was present in 33% of the patients, urobilinuria in 6%, and albuminuria in 33% with cylindruria in 8 patients Most of the patients came from overpopulated sections of urban centers Considering the large number of people who were not treated in hospitals, the authors estimate that 2% of the inhabitants of the area were affected by the epidemic Most of the patients were stricken during the months of July and August Exposure to the sun accounted for 12% of the cases encountered in this epidemic

Benign Tumors of Peripheral Nerves and Their Masquerade H W Dodge Jr and W McK Craig Minnesota Med 40 294-301 (May) 1957 [St Paul]

The authors studied 343 solitary benign tumors of the sheaths of peripheral nerves that were removed surgically at the Mayo Clinic between 1909 and 1948 inclusive To obtain a clearer picture of the true nature of these so-called benign tumors of nerve sheaths, the authors excluded traumatic, amputational, sclerosing, or diffuse plexiform neuromas, metastatic, malignant, or multiple tumors, and any lesions possibly related to Recklinghausen's disease The pathological diagnosis was made routinely from fixed sections stained with hematoxylin and eosin Special stains for reticulin, connective tissue, neurofibrils, and fat were employed in some cases The histories of 7 patients are presented to illustrate how these tumors may mimic other disorders Two of these illustrate how important it is to examine the peripheral nerves for evidence of tumor, even in patients with good "disk" stories A third patient had various "septic foci" (teeth, tonsils, sinuses) removed or drained, had tried applications of moist heat, physiotherapy, and traction on the leg, and had visited many warm water spa Absolute alcohol had been injected into the anterio crural nerves on the left Exploratory lumbar laminec tomy and rhizotomy had been done but to no avai Laparotomy revealed a neurofibroma that was a tached to the left femoral nerve Removal of th tumor gave relief of symptoms A patient in whom benign neurofibroma was found between the 9th an 10th ribs had had precordial pain that had been diagnosed as coronary angiospasm

Complaints of pain and disability involving th neck, shoulder, and upper extremity are so commo that the examining physician may overlook periphera nerve tumors as he considers the possibility of suc entities as cervical hypertrophic arthritis, tumor o the cervical portion of the spinal cord, myelitis, protruded cervical intervertebral disk, post traumati brachial neuralgia, cervical rib, scalenus anticus syndrome, bursitis, and angina pectoris Careful palpatio of the involved parts may be helpful, as shown in patient in whom a nodule was found in the left supraclavicular fossa A benign neurofibroma was remove from one of the branches of the left brachial plexus and the patient obtained complete relief "Renal colic was simulated in a patient in whom a benign neurofibroma apparently arose from a branch of the lef lumbar plexus Finally, typical Bell s palsy was present in one in whom a small neurofibroma was enucleated surgically from the facial nerve These tumor of the peripheral nerves most commonly are evidenced by the presence of a mass along the course of a nerve but if they occur in deeper tissues or in the thorax o abdomen an accurate diagnosis may be delayed o difficult Treatment of neurofibromas is always surgical, and removal can be effected through excision or capsular enucleation

Effects of Hypocalcemia on the Central Nervous System C R B Blackburn Rocky Mountain M J 54 441-444 (May) 1957 [Denver]

Hypocalcemia induces changes in the skin, nails, hair, lens, and nervous system While there are many causes of chronic hypocalcemia with tetany, one of the commonest is still accidental removal of the parathyroids during thyroidectomy The 20 women with hypoparathyroid hypocalcemia all at some time had clinical tetany with paresthesias, cramps, or carpopedal spasms Seventeen of 19 had a positive Trousseau's sign when first seen, and 10 of 18 who were examined with the slit-lamp had early or definite cataract Eleven of 12 patients had typical electrocardiographic changes, which subsided after treatment Symptoms relating to the central nervous system were observed in 19 patients Definite psychological changes were observed in 15 of the 20 patients The improvement in personality that oc ured when the serum calcium had been maintained t normal levels for several weeks was often remarkble Mild personality changes were the most common indings Depression, loss of memory, disturbed sleep, nd emotional imbalance were more usual than frank sychoses

These symptoms may persist with little change for ears, and the patient may remain mentally disturbed, epressed, or dull The symptoms in the older patient ay simulate a mild senile dementia The author observed patients who, in the words of their relatives, ad never been normal since their thyroidectomies 10 12 years earlier, yet were quite restored by a few eeks of normocalcemia Epileptic seizures may occur soon after operation The only unusual aspects of hese fits is carpopedal spasm early in the seizure If ypocalcemia is corrected, the fits disappear permaently unless the patient has coincidental idiopathic pilepsy Abnormal electroencephalographic records ere obtained in half of the patients Parathyroid ormone is of virtually no therapeutic value Acute ymptoms indicate the intravenous administration of alcium gluconate Long-term management requires ttention to the calcium and phosphorus in the diet nd the use of a calcium salt by mouth plus vitamin D r a homologue The patients must be kept under areful control, as the response to vitamin D may vary o that hypercalcemia may result The author determines the serum calcium level at regular intervals ather than relying on the Sulkowitch test in the urine

iant Pearl Tumor of Cerebellopontine Angle P Alert Lasierra and A Martínez Caro Rev clin españ 4 248-250 (Feb 28) 1957 (In Spanish) [Madrid]

Intracraneal epidermoid is a rare tumor Only one ase was observed by the authors in a series of 150 ntracraneal tumors that were surgically removed The umor occurs as a rule in the region of the cerebellopontine angle or, in order of frequency, in the regions f the optic chiasm, the Sylvian fissure, the lateral entricles, or the quadrigeminal tubercles The tumor rows to the size of an olive or a nut In exceptionally are cases, it may grow to the size of a hen's egg acroscopically, the tumor is made up of a crystalline ubstance, arranged in layers of different thickness, imulating the structure of an onion The tumor subtance, with the exception of the capsule, is very riable Histological examination of the capsule shows he 3-laminar structure of the epidermis, with (1) a asal-cell layer, (2) a granular layer, and (3) a horny ayer The prognosis of surgery in these tumors is good provided that the capsule is entirely removed Removal of the capsule of an epidermoid tumor located in the region of the cerebellopontine angle is difficult Removal should be as complete as possible o prevent recurrence and the development of postoperative aseptic meningitis

A 37-year-old woman complained of acute neurological symptoms that had lasted for 3 years When the patient was observed for the first time she had cachexia and was blind and deaf A roentgenographic examination of the cranium did not reveal the tumor A diagnosis of cerebellar tumor was made on the basis of typical neurological symptoms Repeated ventricle puncture caused improvement of the neurological symptoms and of intracranial hypertension At operation the tumor was found to be located in the right cerebellar hemisphere It was concealed by various arachnoid cysts, which were opened to reach the tumor in the region of the cerebellopontine angle The tumor was huge and had the typical aspect of an epidermoid tumor The large cavity about the right cerebellar hemisphere left after removal of the tumor indicated the large size of the tumor In opening the capsule during its removal, the cisterns were opened and a large quantity of fluid was drained The tumor was diagnosed anatomicopathologically as an epidermoid tumor The patient was given corticotropin in continuous intravenous drip in daily doses of 75 mg in the immediate postoperative period and for a few days She recovered with the permanent sequelae that had been previously established

The Problem of Alcoholism in General Practice in a Norwegian Town Illustrated by a Follow-up O Bastøe Tidsskr norske laegefor 77 298 301 (April 1) 1957 (In Norwegian) [Oslo]

In a general practice in a Norwegian town 97 patients (90 men, 7 women), aged between 30 and 54, with problems related to alcohol were treated in cooperation with nonprofessional workers The percentage of divorced and unmarried persons seemed to be higher than in the average population of the town The cases were predominantly chronic and the social standard was low Fifty-six persons sought aid on their own initiative, and 41 had been encouraged by others Thirty-four had been treated earlier for alcoholism, 5 were addicted to narcotics as well Many had been treated for nervous disease, and 21 had nervous symptoms on the first consultation The medical treatment was directed mainly to the actual intoxication Disulfiram was given for a longer time as an adjuvant to other treatment of psychotherapeutic kind Efforts were made to solve personal and marital problems and to get the patients back to work and interested in A A, abstinence societies, or Christian organizations Immediate results of treatment showed that 44 were well or improved Follow-up in 63 cases showed 8 to be total abstainers and 26 improved The duration of abuse in these 34 patients averaged 16 years The improvement had a significant positive influence on the social standard

Prognosis for Respiratory Recovery in Severe Poliomyelitis J E Affeldt, A G Bower, C W Dail and N N Arata Arch Phys Med 38 290-295 (May) 1957 [Chicago]

Follow-up studies for from 2 to 4 years, of 500 patients with acute poliomyelitis who were confined to respirators showed that 70 died, a death rate of 14%, 364 patients (73%) became completely independent of the respirator, and 66 (13%) were still using the respirator 2 years after the onset of poliomyelitis Of the 70 patients who died within 2 years of the onset, 39 died in the first 2 weeks The death rate reached a low plateau after the first 2 weeks and became lower and quite sporadic during the second year and afterward During the 4 years of the study, there was a significant decrease of the death rate from 22 to 10%, indicating improvement in the therapeutic program The greatest incidence of removal from the respirator occurred during the second and third months after onset, with a rapid decline thereafter to a low level of incidence, as a few patients became independent of the respirator each month up to and after the 2-year point By the end of first 6 months, 302 (83%) of the 364 to become free had done so The mean level of vital capacity at the time of complete removal from the respirator was 62% of the predicted normal, with a range of from 23 to 100% The patients who remained in respirators had a mean level vital capacity of 16% with a range of 1 to 39% The overlap of 23 to 39% between the 2 groups indicates that in some of the patients (9%) vital capacity cannot be used for prognosis

Improved medical care helped the patients with more severe involvement to survive the acute phase and enter the convalescent phase, but this improved care during the acute phase does not imply that they will have greater functional recovery The incidence of freedom from the respirator was higher than anticipated, and this justifies a certain degree of optimism in the physician who puts a patient into a respirator and dispels any trace of the old concept that the respirator is an instrument of last resort The fact that removal from the respirator usually occurred within 6 months suggests that the recovery response of the respiratory muscles is similar to that of the other muscle groups

PEDIATRICS

The Innocent (Functional) Cardiac Murmur in Children D H Fogel Pediatrics 19 793-800 (May) 1957 [Springfield, Ill]

Of 101 children under 14 years of age who were referred to a community cardiac clinic for examination, 63 (62 5%) were referred because of cardiac murmurs, 32 (31 7%) because of rheumatic fever or rheumatic heart disease, 4 (3 9%) because of congenital heart disease, and 2 (1 9%) because of cardiac enlargement and chest pain respectively Each patient was evaluated with respect to clinical history, physical examination, fluoroscopy, electrocardiogram, pertinent laboratory data, and follow-up examinations Of the 101 children, 54 (53 3%) had uncomplicated innocent systolic murmurs Seven of 10 children with a history of rheumatic fever also had an innocent systolic murmur, which would make the incidence of innocent murmurs 60 4% in all children referred for cardiac evaluation

There are four types of innocent systolic murmurs, namely, the “vibratory parasternal-precordial systolic murmur, the blowing pulmonic murmur, the cardiorespiratory murmur, and the hemic murmur The first of the 4 was the most common The blowing pulmonic systolic murmur was next in frequency and was more prevalent in children over 10 years of age, as the ‘vibratory” parasternal-precordial murmur decreased in incidence Of the uncomplicated innocent systolic murmurs, the site of maximal intensity was at the apex in 6 patients (11 1%), at the pulmonic area in 7 (12 9%) and in the 3rd and 4th intercostal spaces at the left sternal border in 41 (76%) No cardiorespiratory murmurs were noted Patients with an innocent systolic murmur were discharged from further cardiac follow-up, provided that their clinical history was negative and that they had the typical characteristics of an innocent systolic murmur, normal cardiac size and contour as revealed by roentgenogram and/or fluoroscopy, and normal electrocardiogram

Treatment of Basedow’s Disease in the Child J Marie G Sée, J Guedeney and J-L De Gennes Semaine hôp Paris 33 1607-1613 (April 22) 1957 (In French) [Paris]

The statistics of authors who have had wide experience in the treatment of thyroid disturbances show that exophthalmic goiter rarely occurs in young children Thus only 157 children in a series of 15,000 patients with hyperthyroidism treated at the Mayo Clinic were found to have exophthalmic goiter (1 5%) However, in 1953, 2 little girls, aged 5½ and 8 years, came by chance to the authors within the space of a few days for treatment of this condition Immediate operation on the thyroid gland in children with goiter has produced excellent results, but, because of the uncertainty surrounding the possible late results of such operations in young children, the authors decided to try medical treatment first and to operate only if it failed The wisdom of this decision is shown by the fact that neither patient has required surgical treatment and that both are now leading lives normal for children of their age

The preparations used were the synthetic antithyroid drugs, benzylthiouracil (Basdene), later replaced by methyl-2-mercaptoimidazol (methimazole, marketed in France as Basolan), small doses of thyroxine 0 25 to 0 5 mg daily, to check the production of hypophyseal thyreostimuline and reduce exophthalmos and barbiturates, which were given freely to reduce neurovegetative excitability The initial treatment should begin with a period of bed rest, during which the patient is isolated from all causes of nervous irritation and excitement Separation from the other members of the family is sometimes advisable, and hospitalization may provide a beneficial break in the usual routine The diet should be varied and rich in glucides and lipids Increasing doses of an antithyroid drug should be given during this initial period, which may last for 1 or more weeks, until the optimum dose has been determined The therapeutic objective in the next stage, during which administration of the drugs is continued, is to secure not only the restoration of a normal general condition but also the regression of the goiter and, if possible, of the exophthalmos This stage, which may last for months or even for a year or more, is followed by one in which the dosage of the drugs is gradually reduced until at last they can be discontinued Treatment of this kind is necessarily prolonged, but the condition is usually stabilized within 2 or 3 months and the children can then gradually resume their normal activities, and especially their schooling Treatment was discontinued in the authors' patients at the end of 3 years, and periodic checks of the clinical and biological signs during the last 2 years have so far proved the stability of the cure

Hypophosphatasia D Fraser Am J Med **22** 730-746 (May) 1957 [New York]

The author reviews the cases of 14 male and 21 female patients between the ages of 2 months and 44 years with hypophosphatasia who have been reported on by other workers He divides these patients into 3 groups, the first comprised of 16 infants in whom lesions were present at birth or within the first 6 months of life the second comprised of 15 children in whom lesions gradually became apparent after the age of 6 months and the third comprised of 4 patients in whom hypophosphatasia was first diagnosed in adult life There is now good evidence that hypophosphatasia is a specific disease characterized by 3 salient features namely abnormal mineralization of bones, diminished alkaline phosphatase activity, and increased urinary excretion of phosphorylethanolamine Little factual information is available concerning this rare and only recently discovered condition There is strong evidence that hypophosphatasia is genetically determined It is reasonable to suggest that the bone lesions are the result of a disturbance in the cellular process concerned with either the elaboration of organic matrix, or its calcification, or both Since the osteoblast is considered to play a key role in the control of both matrix formation and mineral deposition, and since the enzyme it elaborates, phosphatase, has been variously implicated in both processes, further elucidation of the primary disturbance in hypophosphatasia may contribute materially to the understanding of the fundamental physiology of bone

Vitamin D Resistant Rickets Diagnosis and Management C W Daeschner Jr Texas J Med **53** 324-329 (May) 1957 [Austin]

The author reports on 6 children between the ages of 1 and 7 years and 2 adults aged 22 and 38 years, respectively, with vitamin D–resistant rickets characterized clinically by florid rachitic deformities of the extremities, vertebrae, skull, and costochondral junctions Skeletal deformities such as bow legs, knock knees, and palpable enlargement of the epiphyses were present in all 8 patients Dwarfism of marked degree was observed in 4, and the remaining 4 patients showed early but definite evidence of retarded statural growth Dental abscesses with tooth loss occurred in 7 patients There were 3 involved members in 1 family (mother and 2 children) and 3 in another family (patient and his 2 paternal cousins) The diagnosis of resistant rickets was established at an average of 3½ years in the 6 children, and only in adult life in the 2 adult patients An initial diagnosis of rickets of the vitamin D–resistant type was made in only 2 of the 8 patients The others had been previously thought to be achondroplastic and were, therefore, not properly treated Laboratory examination of the serum inorganic phosphorus, alkaline phosphatase, and calcium levels will serve to differentiate these conditions Vitamin D in doses of 300,000 to 1 million units daily may be necessary to promote healing initially, and one-third to one-fourth of this amount is usually sufficient for maintenance therapy Toxic reactions to vitamin D may develop in these patients and are characterized by polyuria, thirst, headache, and anorexia The onset of any of these symptoms is indication for immediate cessation of administration of vitamin D for 7 to 10 days, and treatment should then be reinstituted at a reduced dose level

Treatment of Mumps Orchitis with Cortisone and Corticotropin P Van Den Bon Nederl tijdschr geneesk **101** 753-754 (April 27) 1957 (In Dutch) [Haarlem Netherlands]

The author describes observations on 2 boys with mumps orchitis, aged 13½ and 15 years respectively The first had painful swelling of the scrotum and its contents, and the history revealed that 8 days before he had had a swelling of the parotid gland on the left side, followed 3 days later by parotitis on the right side The parotitis had taken the usual course up to the 8th day, but on the 9th the temperature suddenly increased to over 40 C (104 F), both testes became swollen and painful, and there was erythema and edema Symptoms of meningeal involvement and of mumps pancreatitis also appeared Treatment with hydrocortisone and with estrogen was begun, and rapid improvement followed In the second patient, the testicular swelling was unilateral and the process was less serious than in the first patient This patient was treated with rest, estrogenic substances, and corticotropin

The author believes that, particularly in patients with bilateral involvement and severe swelling, drainage is advisable Antibiotics are of no practical value Estrogens should be given prophylactically to all patients with mumps who have passed puberty, to prevent orchitis Gamma globulins, blood, or serum from convalescents is theoretically advisable but can rarely be applied in practice Observations on the 2 patients presented corroborate the observations of other investigators that cortisone, corticotropin, or other adrenal extracts should be used

Prednisone and Prednisolone in the Treatment of Eczema in Nurselings and Young Children F Copello and M Cajati Minerva pediat **9** 250-257 (March 3) 1957 (In Italian) [Turin, Italy]

Prednisone was used in 19 infants between the ages of 3 and 25 months, there were 10 cases of dry eczema, 7 of weeping eczema, and 2 of bronchial asthma with minimal cutaneous findings Prednisolone was used in 16 infants in the same range of ages, this group included 8 cases of dry eczema, 7 of weeping eczema, and 1 of bronchial asthma The initial dosage of 3 mg per kilogram per day was the same for the 2 drugs, it was given in divided doses at 12-hour intervals This level was maintained not longer than 10 days, it was gradually reduced before or at that time and continued not longer than 30 days in the case of prednisone and 27 days in the case of prednisolone, unless the symptoms were relieved before that time

The prednisone had various degrees of success in different patients In 2 of the 10 cases of dry eczema the cure persisted after the treatment was discontinued, and in 2 others the cure was complete but the eruption returned when treatment was stopped, in 5 others there was improvement and in 1 there was failure The prednisolone gave similar results In 2 of the 8 cases of dry eczema the cure persisted after treatment was discontinued, and in 2 others the relief was complete but temporary, in 2 there was improvement and in 2 there were failures

The results for weeping eczema and for asthma varied likewise from patient to patient Of 5 patients who received prednisone for bronchial asthma, 2 obtained relief persisting after the end of treatment, but in 3 the symptoms returned when the treatment stopped Of 4 patients who received prednisolone for bronchial asthma, 3 obtained relief persisting after the end of treatment, and in 1 the symptoms returned when the treatment stopped In 7 of the 9 asthma patients the treatment was accompanied by a significant fall in the eosinophil count The authors also obtained data on total blood protein, total white blood cell count, and differential white blood cell count and found only favorable effects in these areas

Neither drug caused serious side-effects in the dosage used It was the impression of the authors that prednisolone was prompter than prednisone in its action Because of the favorable results obtained in some patients and the absence of undesired side-effects, the authors recommend a more widespread trial of these 2 substances for eczema and asthma in children

Shigellosis Pediatric Aspects, with Special Reference to Central Nervous System Manifestations S G Thompson and T C Panos Texas J Med 53 320-323 (May) 1957 [Austin]

Of 68 children with the sporadic form of shigellosis, 20 were aged less than 1 year, 23 between the ages of 1 and 2 years, 21 between the ages of 3 and 6 years, and 4 between the ages of 7 and 15 years No deaths occurred Duration of hospitalization ranged from 5 to 10 days Diarrhea was the initial symptom of the disease in 34 patients (50%) Thirty-three patients had bloody diarrhea, 33 had nonbloody diarrhea, and only 2 had no diarrhea Many patients showed evidence of involvement of the central nervous system, such as convulsions in 15, mental confusion in 7, nuchal rigidity in 5, and severe headache in 4 Anemia was a common finding and was severe enough to require blood transfusions in 14 patients Lumbar puncture was performed in 25 patients By using the rather conservative criterion of requiring more than 10 cells in the spinal fluid in order to establish pleocytosis, there were 8 patients with elevated cell counts The spinal fluids of an additional 5 patients contained between 5 and 10 cells per cubic millimeter

Clinical suspicion is the key to the early diagnosis of shigellosis, which, despite the sporadic form of its occurrence, constitutes an important public health problem in Texas Isolation of the Shigella organisms provides the only conclusive confirmation of the disease The use of a battery of mediums and special bacteriological techniques should be adhered to The best and most practical method of obtaining a stool specimen is by the use of the rectal swab A significant number of patients respond satisfactorily to the usual symptomatic measures The broad-spectrum antibiotics are at least as effective as sulfadiazine Combination drug therapy is recommended for patients with chronic or resistant disease

DERMATOLOGY

The Effect of Antibiotic Therapy Upon Enteric Bacteria in Acne Vulgaris D E Loveman and R O Noojin J Invest Dermat 28 183-186 (Feb) 1957 [Baltimore]

The investigations described were undertaken to determine the difference in the lower intestinal bacterial flora of 10 patients with severe pustular acne vulgaris before and after antibiotic therapy There were 8 females and 2 males Fecal specimens were obtained by inserting a sterile cotton swab into the rectum and rotating it several times over the rectal mucosa The swab was then immediately streaked over 2 blood agar plates, 1 of which was incubated under anaerobic and 1 under aerobic conditions No enteric pathogens were isolated from any of these patients The flora isolated were similar to those usually isolated from healthy persons Cultures where also made from the pustules of each patient, and the organisms were tested against the following antibiotics chloramphenicol, erythromycin, tetracycline, chlortetracycline, oxytetracycline, and penicillin The antibiotic to which the patient s organism was most sensitive was prescribed The antibiotics used were erythromycin, potassium penicillin G, and oxytetracycline The pustular acne phase of each patient was improved In 9 of the patients, the lower enteric bacterial flora was qualitatively altered With these data it cannot be stated whether these changes in the bacterial flora significantly influenced the patients' clinical improvement

Research on the Function of the Endocrine Glands in Patients with Different Dermatoses Related to the Menstrual Cycle C Tinozzi and L Bruni Minerva dermat 32 69 81 (March) 1957 (In Italian) [Turin, Italy]

The function of the endocrine glands and its relationship to certain forms of dermatosis was studied in 15 patients with juvenile acne, rosacea, alopecia, kraurosis vulvae, or eczema One patient was 70 years old and the others were 15 to 45 years old Hyperfolliculinism was present in most of the patients Gynecologic examination showed no organic alterations in 3 sexually mature patients The authors think that in these patients the hyperfolliculinism was caused by functional anomalies related to an excess of follicle-stimulating hormone Two patients had marked hepatic insufficiency The authors believe that the hyperfolliculinism was caused by insufficient degradation of the estrogens when these passed through the liver Aggravation of the dermatosis occurred in all patients 5 to 6 days before menstruation, when the amount of hormones present in the body is at its peak Hypo ovarianism with folliculin deficit and an excess of androgens was observed in patients with juvenile acne Premenstrual eczema was always accompanied by an excess of estrogens and alopecia by a deficiency of estrogens Treatment of the endocrine disturbance with estradiol, progesterone, or testosterone was always beneficial Premenstrual symptoms disappeared completely in some patients

OTOLARYNGOLOGY

Carcinoma of the Antrum An Analysis of 60 Cases with Special Reference to Primary Surgical Extirpa on H G Tabb Laryngoscope 67 269-341 (April) 1957 [St Louis]

Sixty cases of carcinoma of the maxillary sinus were collected from 3 hospitals in the course of 16 years Of the 60 patients, 42 are known to be dead after periods varying from 1 month to 7 years and 5 months Only palliative measures were used in 5 of the 42 patients Of the 18 not known to be dead, 11 were alive when ast seen but in all of them the disease was regarded as uncontrolled The remaining 7 patients were known to be alive and well for periods varying from 3 years to 12 years and 3 months after treatment, but only 4 of these had survived for 5 years The numbers are too small to be significant, but it is of clinical interest that 6 of the 7 survivors were treated surgically, with or without irradiation, and that all 4-year survivors were thus treated

Carcinoma of the maxillary sinus is an infrequent disease, for which no universally applicable causative factor has yet become apparent, though chronic irritation undoubtedly plays a role in some patients Most tumors (48 of the 60) were of the squamous cell type, and in a large proportion the tumors were anaplastic Because the disease was usually far advanced when the patient was first seen, the precise point of origin was often difficult to determine The fairly general belief that carcinoma of the maxillary sinus is a localized disease, in which metastases seldom occur, was not warranted by the facts The metastases might not be observed for 2 reasons—the patients often die before obvious metastases occur, and metastases are not sought for If autopsy could be secured in every case, the thinking on this point would become quite different The most unfortunate consideration in carcinoma of the maxillary sinus is the rather general acceptance of the late clinical findings as classic With care, a history of early, presumably insignificant symptoms can usually be secured Unless the emphasis is placed on these early symptoms and unless physicians develop a higher index of suspicion than now exists in regard to this disease, the results are not likely to improve

Diagnosis rests on clinical and roentgenologic examination and biopsy of an ulcerated area on the cheek or in the mouth Aspiration biopsy and cytological examination are useful adjuncts, but formal biopsy is essential in every case, frozen section is not an acceptable substitute The pendulum of management has swung from primary resection to primary irradiation Now treatment is based on primary radical resection followed, in selected patients by irradiation Radical operation always includes maxillectomy The orbital contents should be removed or allowed to remain in situ according to the indication in the particular case Controlled hypotensive anesthesia is a useful technique in selected patients The technique and dosage of irradiation therapy is determined by the radiotherapist, but the best results are secured when he and the surgeon work in close cooperation The recorded results of treatment of carcinoma of the maxillary sinus are discouraging, but in recently reported series the results were best when treatment consisted of radical resection followed by selective irradiation Death from this disease can be so prolonged and terrible that these circumstances must be considered in evaluating the surgical risk

Mastoiditis in Alaska Surgical Experiences with 122 Consecutive Cases M H Fritz Northwest Med 57 563-577 (May) 1957 [Seattle, Wash]

Middle ear disease and mastoiditis represent an important health problem in Alaska In the Native Health Service Hospital at Anchorage there are at present 28 patients recovering from mastoidectomy on one or both ears or awaiting mastoidectomy The author estimates that the native (Eskimo, Indian, and Aleut) population of about 50,000 persons includes probably 3,000 patients with mastoiditis and that the number requiring speech and hearing rehabilitation and hearing aids must be more than 3,000 This report is concerned with 122 consecutive patients (including 94 Alaskan natives) in whom the author performed operations for mastoiditis A total of 149 ears were operated on The postoperative follow-up has ranged from 4 weeks to 8 years The mastoiditis was considered cured when the cavity was dry and completely epithelialized, with no communication to the eustachian tube Conversely, any unepithelialized cavity or one which had an open eustachian tube was not considered cured By these criteria 31% were failures and 69% were cured Thirty-four revisions were done because of lack of progress toward healing, indolent wound healing, or excessive, exuberant granulations Twenty-nine ears needing one or more revisions had received grafts at primary operation

The author believes that in the patients operated on during the earlier years the healing process was too frequently interfered with Now nothing enters the wound except sterile aureomycin powder or a mixture consisting of Terramycin, polymyxin, and Timofax powders No instruments are introduced into the wound, and no swabs of any kind are used In the absence of grafts, as is the practice now, the cavities become shallow very rapidly There are very few instances where granulations become indolent or exuberant The author deplores that the health service of the natives of Alaska has been and still is inadequate All means must be used to simplify the mastoid operation and the postoperative care Occasionally nature performs a mastoidectomy by gradual sclerosis of the mastoid process and final lining of the middle ear (with its ossicles gone) and the antrum with a smooth epithelium With completion of this automastoidectomy, hearing is, of course, gone This process, in the Alaskan native, is not completed until the patient is between 30 and 35 years of age Generally the process is not self-limited but aborts into the labyrinth, the dura, or the lateral sinus or continues for the patient's entire life as a mixture of foul discharges from bone necrosis and cholesteatoma that can only be terminated by surgery

THERAPEUTICS

The Treatment of Leprosy with Diamino Diphenyl Sulphoxide A Progress Report T F Davey, A M Kissaun and G Moneta Leprosy Rev 28 51-59 (April) 1957 [London]

The molecular structure of diaminodiphenylsulfoxide is similar to that of diaminodiphenylsulfone In a short-term trial Buu-Hoi and co-workers had found that diaminodiphenylsulfoxide was comparable in activity to diaminodiphenylsulfone Supplies of diaminodiphenylsulfoxide were obtained for a trial in Nigeria, and the authors gave the drug in doses of 100 mg daily to a representative group of 24 patients with leprosy, none of whom had received chemotherapy previously Patients of the test group were matched individually against patients of a control group being treated with diaminodiphenylsulfone At the end of the 15-month trial period 18 of the patients had received the diaminodiphenylsulfoxide for a year or longer In respect to its activity against Mycobacterium leprae the drug was found to be comparable to diaminodiphenylsulfone, that is, the findings of Buu-Hoi and his associates were confirmed Clinical progress was satisfactory in all patients and very gratifying in some Routine tests showed that the number of bacilli declined in all patients, but the decline was irregular in degree, adults showing more progress than children Toxicity was not of a high order at the dosage used A mild degree of anemia encountered in the early stages of treatment was self-limiting and called for no interruption in the treatment schedule Complications of treatment were insignificant The drug is considered worthy of wider trials

Protection by Diethyldioxystilbenedipropionate Against Leucopenia Due to Roentgen Therapy L Bellesia, E Lusvarghi, C Pasquinelli and M Dardari J Fac Radiologists 8 239-249 (April) 1957 [Bristol, England]

Diethyldioxystilbenedipropionate as a protection against irradiation leukopenia was given to 10 patients with lymphogranulomatosis, lymphosarcoma, and malignant epithelial new growths who were receiving roentgen therapy for these conditions The total dose of the drug varied from 8 5 to 35 mg These patients were compared with other patients with similar conditions to whom diethyldioxystilbenedipropionate was not given as regards both the site and the stage of disease Results showed that diethyldioxystilbenedipropionate can prevent irradiation leukopenia The previous findings by Storti and co workers that this drug acts similarly during chemical antimitotic therapy suggest that the type of antiblastic agent used is immaterial Combined roentgen and stilbene therapy permitted the use of larger doses of x-ray with satisfactory results of treatment in patients in whom the leukopenia would otherwise have necessitated the premature interruption of treatment It is possible to prolong roentgenotherapy and to give larger doses than usual because leukopenia appears more slowly and is less severe It is possible in patients with severe leukopenia to institute and complete roentgenotherapy when otherwise it would have been dangerous to the patient The mechanism of the protection against leukopenia by the drug is still uncertain

RADIOLOGY

The Treatment of Recurrent Carcinoma of the Rectum by Supervoltage X-ray Therapy I G Williams, I M Shulman and I P Todd Brit J Surg 44 506 508 (March) 1957 [Bristol, England]

This report is concerned with 82 patients in whom rectal carcinoma recurred after surgical treatment The commonest symptom of recurrent neoplasm was pain, which generally occurred in 1 of 3 places the perineum, the lumbar region, and the leg Perineal pain is often described as where the rectum used to be " Back pain is most commonly a nagging ache and situated in the small of the back Leg pain is usually sciatic in character In the early small localized recurrences an attempt at radical cure was made When the recurrence was more widespread locally or presented as a metastasis, in either soft tissue or bone, palliative treatment to relieve symptoms was carried out A dose of 6,000 r in 6 weeks was delivered when radical therapy was the aim In palliative treatment for relief of symptoms a dose of 3,000 to 4,000 r was fractionated over 3 or 4 weeks Roentgen rays generated at 1000 kv were employed in all patients Two advantages of rays at this kilovoltage over the conventional 250-kv rays are a more homogeneous distribution of radiation to the volume treated and a far superior skin-depth dose ratio, with resultant diminution in the severity of the skin reaction At supervoltage x-ray level there is no differential absorption in bone, as occurs at 250 kv Seventy-one of the 82 patients benefitted from the treatment Recurrent carcinoma of the rectum can seldom, if ever, be treated by surgery, apart from neurosurgical methods Furthermore, if the surgeon is not satisfied with the excision or if the pathological report shows extensive local spread or a high grade of malignancy, a course of supervoltage x-ray therapy offers the best chance of a cure

BOOK REVIEWS

Clinical Toxicology of Commercial Products Acute Poisoning (Home & Farm) By Marion N Gleason, Research Assistant in Pharmacology, School of Medicine and Dentistry, University of Rochester, Rochester, N Y, Robert E Gosselin, M D, Ph D, Professor of Pharmacology, Dartmouth Medical School, Hanover, N H, and Harold C Hodge Ph D, D Sc, Professor of Pharmacology and Toxicology School of Medicine and Dentistry, University of Rochester Cloth $16 Pp 1160, with illustrations Williams & Wilkins Company Mount Royal and Guilford Aves, Baltimore 2 1957

Here is a much needed reference to the toxicology of chemical products When one considers that there are about 250,000 trade-name products, the magnitude of the subject and the amount of research involved will be appreciated Today potentially toxic chemicals in various products are widely used in and around the home Due to careless handling and storage and the lack of informative and precautionary labeling, the physician may be called on to treat cases of accidental poisoning It is impossible for him to be familiar with the general formulations of these products, the toxicity of their ingredients, and recommended therapy This volume provides valuable assistance in these problems

The seven sections of this book are differentiated by colored paper Section 1 outlines general emergency procedures and precautions required in all cases of acute poisoning Section 2 is an alphabetical compilation of chemical ingredients commonly found in commercial products used around the home Their acute oral toxicity is estimated and a brief description of toxic effects and/or cross references to more detailed information in sections 3 and 4 is given Section 3 summarizes clinical and experimental data on compounds and classes of compounds It emphasizes toxic signs and symptoms and recommended therapy Section 4 deals with techniques of supportive treatment Section 5 lists over 15,000 trade names of products that might be involved in poisoning The category of use is indicated for each product and in most cases the ingredients are named An asterisk marks those ingredients expected to be responsible for harmful effects Section 6 presents basic formulas representative of the types of products listed under trade names Section 7 gives the names of all the manufacturers of the products appearing in the trade name index This book performs a great service to physicians and represents the collaboration between a team from the University of Rochester and 4,500 manufacturers

Text Book of Orthopaedic Medicine Volume II Treatment by Manipulation and Massage By James Cyriax, M D, M R C P, Physician to Department of Physical Medicine St Thomas's Hospital, London Fifth edition Cloth $6 50 Pp 373, with illustrations Paul B Hoeber, Inc (medical book department of Harper & Brothers), 49 E 33rd St New York 16, [n d]

This book uses the same general outline and principles as those used in volume I Unfortunately, the author repeatedly makes dogmatic statements, indicating that his opinion is correct to the total exclusion of anyone else's He gives no experimental proof by either animal investigation or histological sections to support the validity of many of his statements One might agree with the statements that much of the so-called physiotherapy that is applied is totally useless but not with the statement that every condition the author lists under his treatment schedule can be dramatically cured by deep friction massage The amount of force he uses in traction is not without danger He states that stretching of the neck with 100 lb of traction can increase the distance from the first thoracic to the fourth cervical vertebra by 7 to 8 cm but gives no roentgenographic proof It would seem that such an amount of stretching might cause irreparable nerve damage Also the amount of traction recommended for the lower back is so great that permanent nerve damage might be anticipated The author stresses in many places his ability to reduce dislocated cartilaginous masses In the first place, since cartilaginous masses are not seen in roentgenograms, how does the author know without surgical exploration that a cartilaginous mass is displaced? This is particularly true in manipulations at the knee joint No physiological basis is given or can be imagined for the author's manual vibration for intra-abdominal lesions of the stomach, duodenum, and colon This book makes interesting reading, but it contains too many debatable points to be recommended to medical students or residents

Surgery Principles and Practice [Edited by] J Garrott Allen, M D, Professor of Surgery, University of Chicago Chicago, Henry N Harkins, M D, Ph D Professor of Surgery University of Washington School of Medicine, Seattle, Carl A Moyer, M D, Bixby Professor of Surgery Washington University School of Medicine, St Louis, and Jonathan E Rhoads, M D D Sc, Professor of Surgery University of Pennsylvania School of Medicine and Graduate School of Medicine, Philadelphia Contributors William E Adams, M D and others Cloth $16 Pp 1495, with 623 illustrations J B Lippincott Company, 227-231 S Sixth St Philadelphia 5 2083 Guy St, Montreal, Canada, Pitman Medical Publishing Company, Ltd, 45 New Oxford St, London W C 1, England, 1957

This comprehensive book was designed primarily for use by medical students It is sufficiently detailed and current to serve as an excellent reference work for the practicing surgeon, and its systematic organization should make it of interest to teachers The editors are distinguished surgeons with broad experience, teachers whose ability is recognized, and research workers who have made significant contributions to medical knowledge The other contributors are of similar ability The first chapter is an excellent discussion of surgical philosophy Surgery is defined as "a body of knowledge not only of operative techniques but also of human anatomy, biochemistry, physiology, pharmacology, pathology, bacteriology, medicine and psychology" The obligations of the surgeon in patient care and beyond patient care are well presented The modern concepts of surgery serve as the basis of organization of the succeeding chapters Fourteen chapters are devoted to the basic sciences and their

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These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated

application to diagnosis, preoperative preparation, and treatment Thereafter, disease entities, arranged usually according to organs, are discussed Brief historical notes, basic science relations, diagnosis, and treatment are covered The bibliographies at the end of the chapters are good and manifest careful discrimination in judgment This is an outstanding contribution in which little can be found to criticize

Treves' Student s Handbook of Surgical Operations Revised by Sir Cecil Wakeley BT, K B E, C B, Senior Surgeon to King s College Hospital, London Tenth edition Cloth $7 50 Pp 594, with 272 illustrations Paul B Hoeber, Inc (medical book department of Harper & Brothers), 49 E 33rd St, New York 16, [1956]

For a book on surgical operations, this is a relatively small volume Accordingly, the subject matter is greatly limited The author has made no attempt to discuss indications for operation or preoperative and postoperative care The material is taken up by regions rather than by disease By limiting the text to techniques alone, the author was able to discuss many subjects, including those belonging to subspecialties The first 60 pages deal with detailed technique, ligating various arteries throughout the body, and a thorough discussion of anatomy The author devotes 16 pages to injections of nerves The technique is described carefully with detailed description of anatomy Sixty-seven pages are devoted to amputations, hemipelvectomy is not included The author approves the anticolic Polya gastric resection The technique for vagotomy is included The author wisely recommends the use of a T-tube for drainage following cholecystectomy Radical mastectomy is recommended for cancer of the breast The space allotted to thoracic surgery, including the treatment of cardiac lesions, is comparatively small with only 13 pages devoted to this discussion The young surgeon should find this volume extremely useful, particularly, since techniques are described in great detail and in such a clear, concise fashion It should also be valuable to anyone primarily interested in surgery

Handbook of Differential Diagnosis By Harold Thomas Hyman, M D, Consulting Physician, Monmouth Memorial Hospital, Long Branch, N J Second edition Cloth $8 Pp 801 J B Lippincott Company, 227-231 S Sixth St, Philadelphia 5 2083 Guy St, Montreal, Canada, Sir Isaac Pitman & Sons Ltd Pitman House 39 41 Parker St, Kingsway, London W C 2 England, 1957

This book fills the need for a type of book between complete textbooks of the various phases of medicine and the simple outlines of disease entities It is of a handy size for use as a reference book The first section, printed on blue paper, lists about 3,200 signs and symptoms in alphabetical order with a reference to pages to be consulted in the text Each symptom or sign is discussed briefly as to cause and functional derangements Each disease which can produce the sign or symptom is listed, pathognomic characteristics of the disease are noted, and specific therapeutic advice is included There are no bibliographic references or illustrations The sections on chemical poisonings and occupational hazards are particularly commendable The author has added several new sections to this edition and has revised the text He has emphasized only the clinical aspect of medical science and has done an excellent job of limiting his discussion to diseases most commonly encountered by the general practitioner This book should be of great value to practicing physicians

Manual of Anesthesiology for Residents and Medical Students By Herman Schwartz, M D, S H Ngai M D, and E M Papper, M D Publication Number 298, American Lecture Series, monograph in Bannerstone Division of American Lectures in Anesthesiology Edited by John Adriani, M D, Director, Department of Anesthesia, Charity Hospital, New Orleans Cloth $4 25 Pp 170, with 13 illustrations Charles C Thomas Publisher, 301-327 E Lawrence Ave, Springfield, Ill Blackwell Scientific Publications, Ltd, 24-25 Broad St, Oxford, England Ryerson Press, 299 Queen St, W Toronto, 2B, Canada, 1957

Each chapter of this manual lists the authors preferences as to the basic reading material for the beginner This is not a reference textbook for the anesthesiologist but an introduction to the specialty of anesthesiology It deals with the basic problems relative to anesthesia, starting with such subjects as records and charting signs of anesthesia and premedication and proceeding to the basic physiology and physics relative to anesthesia Following this, the various techniques and complications of anesthesia are discussed The paper on which the book is printed facilitates reading Illustrations are not included unless they serve a useful purpose Each drawing and table is neatly labeled and is of value to the reader This book should be very useful to the medical student, the nurse, and others who would like to have a basic understanding of anesthesia It should also prove valuable to the resident in anesthesiology, in that it should orient him as to the basic problems It has an adequate index

For Teen-Agers Only The Doctor Discusses Marriage By Frank Howard Richardson M D F A C P F A A P With introduction by Paul Popenoe Sc D, Director American Institute of Family Relations Los Angeles Cloth $2 95 Pp 112 Tupper & Love, Inc 55 Fifth Ave, New York 3, 1957

This light, fast moving story of teenagers is a vehicle for serious factual teaching about the physical, emotional, and social foundations of marriage and the hazards in premarital sex relations Dr Richardson has written several books for and about children and the problems of growing up This one is directed to upper-class high-school students of both sexes who are caught in the emotional excitement of teenage loving and petting and may be contemplating marriage Through the conversation of a family physician, a doctor just out of military service, a psychiatrist, a teacher, a student counselor, and the better informed among the young people, the facts are given in simple terms Among the questions raised are these 'What is love? "Why should we wait? How can I prepare for marriage? 'Am I ready for marriage? Is my 'intended' ready for marriage? and 'How much fun is 'having fun'? There is also a discussion of promiscuity This book can serve two purposes it is suitable for putting into the hands of teenagers and, since it gives much information in a brief and organized form, it is worthwhile reading for physicians who counsel teenagers

QUERIES AND MINOR NOTES

INCIDENCE OF DIPHTHERIA

To THE EDITOR —*Is diphtheria becoming the forgotten illness'? When I read that the total reported cases reported among the 160 odd million citizens of the United States to date is 380, my credulity is given a severe wrench This is approximately one case in 434,000 The ability of laboratory technicians to identify the organism among the host of luxuriantly growing micrococci (staphylococci) is definitely on the down grade The reluctance on the part of clinicians to make a clinical diagnosis in the absence of laboratory confirmation is very clear to me in this part of the country Many deaths which are ascribed to myocarditis' are really the end-result of an untreated case of diphtheria, it seems to me, and unfairly swell the growing total of cardiac deaths, while subtracting from the total of deaths due to contagious illnesses We do not immunize humans against the diphtheria organism—only against the toxin of a certain strain of these bacteria which all of us harbor as carriers at some time or other We have done nothing to directly combat the organism And, while the Coxsackie and other virus diseases are emerging from the ooze of ignorance, and we are recognizing and diagnosing them, I am afraid that we are letting clinical cases of diphtheria go, unsuspected to join the vast majority of inapparent cases Please comment on this philosophy*

Charles L Conchlin, M D
Corpus Christi, Texas

ANSWER —The reported incidence of diphtheria in he United States from Jan 1, 1957, to May 11, 1957, was, indeed, 380 cases This is a decrease of 44% from he same period in 1956 This is a more marked decrease than is usually found on an annual basis, but decreases of about 20% have occurred from year to year, quite regularly since 1945 These decreases have not, however, been demonstrated to be the result of comparable gains in immunity Rather, as incidence has decreased the problems of maintaining immunity have grown There is no assurance that the present favorable trend will continue

The degree of under-reporting or rather "under-diagnosis' of diphtheria can only be examined indirectly With proper management and full reporting, the proportion of diphtheria cases terminating fatally can be as low as 2% Yet, in the United States from 6 to 9% of cases are reported as fatal every year There has been essentially no change in this national figure for the past 20 years, despite advances in immunization and the quality and availability of medical care Some states, for the period 1950-1954, reported that as many is 17 to 20% of cases were fatal Such figures must represent serious neglect of diphtheria or neglect in combination with serious under-reporting of nonfatal cases

The 'classic" case of diphtheria has, undoubtedly, always been the least common consequence of infection with Corynebacterium diphtheriae There is evidence, however, that the proportion of infections which result in symptoms clinically suggestive of diphtheria has decreased markedly in the past 30 years This change is independent of prior immunization, but immunization produces its own additional modifying effect As a result, diphtheria today is very often a thoroughly nondescript upper respiratory infection

Diagnosed cases of diphtheria with nasal membrane alone comprise about 2 to 6% of all cases Fatality may be higher than in simple tonsillar diphtheria Certainly examination of the nose should not be neglected, this might well extrude membrane which is already somewhat separated Generally, this is accounted a sign of recovery Any unusual or severe procedure, however, might occasionally have an unfortunate result if employed among the 10 to 20% of patients who have myocardial involvement Sudden death has been known to accompany mild procedures in such patients

Neither clinical signs nor symtomatology are reliable guides to the diagnosis of the majority of cases of diphtheria today Almost any nasopharyngitis or tonsillitis or laryngitis may be diphtheria Cases will continue to be missed entirely or allowed to proclaim their own diagnosis by the development of paralysis or fatal myocarditis, unless a bacteriological diagnosis is made early and routinely Unfortunately, perhaps, it is much easier to treat such conditions than to diagnose them

The proper laboratory diagnosis of diphtheria employs isolation techniques No reliability can be attached to the reading of smears from throats or from mixed cultures Numerous laboratories now attempt the isolation of C diphtheriae only at intervals of many months or years Obsolete methods may be employed or technical errors committed through inexperience Only continuous collaboration with a reference laboratory can assure that competence will be maintained, despite periods when the disease is absent, changes in personnel, variations in commercially supplied reagents, and related hazards

TREATMENT OF MADURA FOOT

To THE EDITOR —*A patient suffering from Madura foot has had the usual treatment with penicillin and potassium iodide on and off for the past two years Finally amputation was recommended, but the patient has refused permission Kindly discuss the latest treatment of Madura foot*

Robert Zarzar, M D, Lima, Ohio

ANSWER —Madura foot is a chronic granulomatous disease caused by infestation with Nocardia asteroides, an aerobic member of the Actinomyces family, and

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The answers here published have been prepared by competent authorities They do not however represent the opinions of any medical or other organization unless specifically so stated in the reply Anonymous communications and queries on postal cards cannot be answered Every letter must contain the writer s name and address but these will be omitted on request

it is presumed that this organism has been isolated from and properly identified in the case under discussion Usually the lesion remains localized, but it may cause death by dissemination The local lesion is confused frequently with tuberculosis or even neoplasm, clinically and microscopically The organism is found in soil, and, therefore, occurrence is most frequent among farmers The infestation is most frequently of the pulmonary form The cutaneous lesions tend to suppurate and burrow in deeper tissues, so that surgical drainage and débridement may be necessary Although the organisms may be sensitive to various antibiotics in vitro, these drugs are not effectual in vivo Sulfadiazine has proved effectual in full doses and its administration must be continued for several months after improvement has occurred A successful result has been reported with pregnenolone acetate, a steroid without toxic or metabolic effect but having antifungous properties Pertinent references are by Lamb and others (*A M A Arch Dermat & Syph* 67 141-145 [Feb] 1953) and Clapp and Williams (*Texas Rep Biol & Med* 13 11, 1955)

RECURRENT ABDOMINAL PAIN

To the Editor —*An 8-year-old boy has been followed for one year, with symptoms of recurrent abdominal pain, nausea, and vomiting that have been present at irregular intervals for the past six years and that have caused him to be seen by many physicians When the patient was first seen one year ago, a diagnosis of abdominal epilepsy was contemplated, an electroencephalogram had revealed a "grossly abnormal pattern consistent with epilepsy' The patient was treated with all acceptable anticonvulsant drugs, and the dosage was pushed to toxicity with no improvement in the symptoms Approximately six months ago this patient was again seen, and the diagnosis of acute appendicitis was suspected The abdomen was explored, acute appendicitis found, and the appendix removed without incident However, on further exploration five separate intussusceptions of the jejunum were found No pathology as to the cause was noted at operation To date of writing, the patient has continued to have intermittent symptoms of intussusception and on occasion has a slight bloody mucoid material in the stool No medication tried to date has been helpful At times 100 mg of Demerol, given hypodermically, is necessary to control the pain Is there any suggestion as to further treatment of this patient?*

Francis J Waickman, M D , Cuyahoga Falls, Ohio

This inquiry has been referred to two consultants, whose respective replies follow —Ed

Answer —Recurrent abdominal pain is always a problem in diagnosis because of the variability of etiology Often with intensive study the cause cannot be found, or it may not be remedial Abdominal epilepsy cannot be entirely ruled out, even though all known anticonvulsants were used in proper dosage, because all cases of epilepsy do not respond to drug therapy The presence of five separate intussusceptions at the time of surgery does not necessarily mean that the intussusceptions were pathological, because small areas of intussusception are not infrequently seen in the small intestine at the time of abdominal surgery These are undoubtedly due to regular and reverse peristalsis because of stimulation of the intestine by handling or other stimuli In polyposis of the small intestine recurrent and persistent intussusceptions may readily occur In some of theses cases the diagnosis often can be suspected because of brown to black pigmentated areas of the mucous membranes of the lips or mouth In such cases the polyps of the small intestine can often be demonstrated by small intestinal fluoroscopy by an experienced roentgenologist At the time of an acute abdominal episode fluoroscopic examination of the small intestine after the patient has drunk a barium mixture might reveal the presence of an intussusception if present

There have been described in the literature cases of recurrent abdominal pain referred to as "periodic syndrome" and 'Armenian periodic syndrome" Although this is called a syndrome, there is still considerable confusion as to any one etiology Some cases have been reported as allergies In others the patients have responded to anticonvulsant drugs The cases described as Armenian periodic syndrome have been reported as being due to a nonspecific inflammatory reaction involving the intestine and the intestinal walls Such information was obtained from the frequent abdominal exploratory operations and the removal of the appendix In such cases the abdominal episodes have continued They are usually accompanied by fever and some leukocytosis This syndrome occurs in both children and adults and may continue for years It has been reported as familial

Upon exploratory operation polyps in the small intestine can often be palpated, but at other times they can be found only by opening the intestine for direct observation Certainly in this case the presence of polyps in the small intestine should be thoroughly investigated, as well as consideration given to the periodic syndrome

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Kempton J J Periodic Syndrome Brit M J **1** 83 85 1956

Answer —Intussusception in the small or the large intestine is often associated with or caused by the presence of a polyp This consultant has seen intussusception of the ileum in several children and, in two or three instances, has operated on them Abdominal exploration was carried out because it was felt that the patients had acute appendicitis On looking farther after a normal appendix had been found, a very definite lymphadenitis was found in the mesentery of the ileum It was reasoned that these enlarged lymph nodes, some 1 cm or more in size and situated in the mesentery near the intestine, caused the intestine to intussuscept in an attempt to push the node distalward, as it would a polyp

The so called colics in children are often due to lymphadenitis in the mesentery of the ileum In three patients in whom it was thought that the cause was acute appendicitis, the condition recurred, and in two at the initial operation intussusception was seen Several of the mesenteric lymph nodes in these patients were removed and showed only inflammatory disease

Some children, sensitive to cow's milk, have used homogenized canned milk fortified by the various vitamins This plan of management has worked out very satisfactorily in several cases and should be tried in the case of the 8-year-old boy, assuming, of course, that the presence of polyps has been ruled out

Secondarily, plication of the ileum can be carried out Adults with familial polyposis are quite often seen in the second and the third decade of life with polyps throughout the entire gastrointestinal tract The areas of intussusception can, as a final last procedure, be treated by resection of the terminal ileum

NOCTURIA WITH PROSTATIC OBSTRUCTION

To the Editor —*What is the pathogenesis of nocturia in prostatic obstruction?* *M D , Connecticut*

This inquiry has been referred to two consultants, whose respective replies follow —Ed

Answer —The causes for nocturia in patients suffering from prostatic obstruction may be divided into primary and secondary

1 *Primary causes* It is constantly observed that the mere presence of prostatic hyperplasia induces nocturia, the cause remains conjectural The nocturia is likely to be more intense if the hyperplasia extends intravesically, but it is present also if the enlargement is confined intraurethrally The distortion produced by the hyperplasia apparently produces inflammatory, although abacterial changes in the mucosa and the submucosa of the trigone and the prostatic urethra The resultant stimulation of both sympathetic and parasympathetic nerves in the mucosa and the submucosa is mediated to higher centers and provokes the desire to urinate, and thereby daytime frequency and nocturia ensue It is claimed also that stretching of the prostatic capsule secondary to prostatic hyperplasia causes nocturia

2 *Secondary causes* The mechanisms whereby complications of prostatic obstruction produce nocturia are more easily understood Any factor which interferes with the ability of the bladder to act as a reservoir may cause nocturia Residual urine, a complication of prostatism, causes nocturia by decreasing the ability of the bladder to act as a reservoir Thus, if vesical capacity is 350 ml in health, the presence of 250 ml of residual urine decreases the capacity of the bladder to function as a reservoir to 100 ml Each time 100 ml of urine accumulates in the bladder, both day and night, the patient experiences the desire to urinate Other frequent complications of prostatism, such as cystitis, urethritis, vesical calculi, and vesical diverticula, limit the distensibility of the bladder, interfere with its function as a reservoir, and thereby produce nocturia Other complications of prostatism, such as severe pyelonephritis or hydronephrosis, may result in azotemia or uremia In an effort to maintain homeostasis, polydipsia and compensatory polyuria occur, a volume of urine much larger than normal is excreted, and frequency of urination ensues

Answer —The exact pathogenesis of nocturia in prostatic obstruction is not clearly defined In general, nocturia seems to increase as the bladder neck is encroached upon For instance, the patient may have a large prostate without nocturia or residual urine if the prostatic urethra is not narrowed Likewise, the prostate may be small, but, if contracture of the bladder neck exists, causing the bladder to overwork in its efforts to expel the urine, nocturia increases Nocturia may also be increased if the patient is a poor sleeper Another associated factor may be diminished voluntary control during the resting or sleeping hours In other words, during the day when fully awake the patient can, to a greater extent, control his frequency With advancing years the kidneys may lose the ability to concentrate the urine, thus causing a greater output of urine at night And some patients like to take a drink or two of water when they go to the toilet at night, thus increasing their output

MULTIPLE SCLEROSIS AND PREGNANCY

To the Editor —*A woman, 21 years of age, experienced sensory and motor disturbances in the left arm and hand and the left leg and foot and showed eye signs which were diagnosed by a competent neurologist as due to multiple sclerosis The symptoms cleared quickly, and there has been no recurrence in the succeeding eight months Should a low-fat diet and/or vasodilators (nicotinic acid) be employed? Does pregnancy increase the risk?*

M D , Ohio

This inquiry has been referred to two consultants, whose respective replies follow —Ed

Answer —The evidence is that pregnancy has no effect upon the progress of multiple sclerosis It is also the opinion that multiple sclerosis does not complicate pregnancy if the multiple sclerosis is not in an active phase It is not recommended that vasodilators be employed during pregnancy, since their value is equivocal in multiple sclerosis A normal pregnancy diet should suffice

Answer —At the present time there is no available satisfactory long-term therapy which will prevent recurrences of multiple sclerosis The evaluation of dietary treatment (really low-fat, high-carbohydrate, moderate-protein diet) is still tentative even after seven years' experience of the original investigator This diet is difficult to adhere to, although its possible effect may justify a trial More controlled studies are necessary, taking into account all the possible variations in the disease It is stated that the greatest usefulness of the diet is early in the disease, yet, it is at this stage that there are the greatest variations and, in addition, there may be a natural tendency, in many cases, for relapses to lessen after the first year The use of vasodilating drugs (such as nicotinic acid, histamine, and papaverine) is not recommended There is no it is presumed that this organism has been isolated from and properly identified in the case under discussion Usually the lesion remains localized, but it may cause death by dissemination The local lesion is confused frequently with tuberculosis or even neoplasm, clinically and microscopically The organism is found in soil, and, therefore, occurrence is most frequent among farmers The infestation is most frequently of the pulmonary form The cutaneous lesions tend to suppurate and burrow in deeper tissues, so that surgical drainage and débridement may be necessary Although the organisms may be sensitive to various antibiotics in vitro, these drugs are not effectual in vivo Sulfadiazine has proved effectual in full doses and its administration must be continued for several months after improvement has occurred A successful result has been reported with pregnenolone acetate, a steroid without toxic or metabolic effect but having antifungous properties Pertinent references are by Lamb and others (*A M A Arch Dermat & Syph* 67 141-145 [Feb] 1953) and Clapp and Williams (*Texas Rep Biol & Med* 13 11, 1955)

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In recent years there has been a change in an old attitude concerning the relation between pregnancy and multiple sclerosis, that is, that pregnancy increased the risk of relapse In several well-considered studies, any exacerbations occurring in patients during pregnancy were regarded to be coincidental Many women with multiple sclerosis bear children without relapse, and some patients actually improve during pregnancy The number of relapses appears to be no higher in child-bearing women than in non-child-bearing women Also, any risk would be much less in patients in prolonged remission, as in the patient in the query

STERILIZATION OF OSTEOTOMES

To the Editor —*Must osteotomes be given cold sterilization and, if so, why? What harm is done by autoclaving osteotomes?*

Frank J Iwersen, M D , Omaha

Answer —There is no recognized basis for the cold sterilization of osteotomes One international authority, who feels that the general standard of aseptic technique in operating theatres is still too low," states that "all instruments must be boiled for not less than ten minutes and reboiled between every operation' He makes no exception for osteotomes One of the best manufacturers of osteotomes states "There are many advantages in keeping your instruments (osteotomes) in this case The cutting edges are protected at all times, and the complete unit may be autoclaved' In one medical center and five affiliated hospitals, osteotomes are wrapped separately in gauze and flash-autoclaved at 270 lb pressure for from 5 to 10 minutes It is understood that this is the usual practice applied by well-trained operating-room supervisors

HYPOPLASIA OF BREASTS

To the Editor —*A 19-year-old woman has normal sexual development except for complete hypoplasia of both breasts The patient, who was told she had asthma, received 100 x-ray treatments of 50 to 75 r each, one-third of these treatments being to the anterior chest and one-third to the posterior chest, from the age of 9 to 14 She is now having normal menstrual periods, although anovulatory on occasion The menarche was at 13, which was in the last year of the x-ray treatments Could such hypoplasia of the breasts be related to the continuous x-ray therapy, even though the dosage was quite small?*

M D , Missouri

This inquiry has been referred to two consultants, whose respective replies follow —Ed

Answer —The x-ray therapy given this patient certainly could result in complete or partial hypoplasia of the breasts On the other hand, this woman could have a congenital absence of the breasts or a congenital defect in the breast anlage resulting in failure to develop, i e , so-called end-organ failure to respond Even with a biopsy it would probably be impossible to establish the exact etiology

Answer —Development of breast tissue does not always parallel that of menstrual reproduction function Accordingly, small or hypoplastic breasts are not infrequently observed when no extraneous causes have existed In addition, such small breasts may have a normal ability to lactate In this particular instance however, one cannot exclude the possibility of the effect of roentgen therapy, although the dose was distributed over a long period of time

CYSTIC CONDITION AT FRACTURE SITE

To the Editor —*What is the significance of a cystic condition at the site of fracture (lower third of the femur) in a healthy boy, 8 years of age? Does the cystic condition develop from the osseous tissue or from the periosteum? Do these conditions clear up without operative intervention, or does the lesion generally have to be curetted and cleaned out before normal bone union occurs? Is the condition related to malignancy?* *M D , Iowa*

Answer —It would be very unlikely for a cystic condition to develop at the site of a fracture of the shaft of the femur in a healthy boy The normal healing of a fracture in the bone would not permit such a condition to develop It is very probable that a cystic lesion was already present, perhaps at the site of fracture of the femur in the lower third, prior to the fracture and may have been entirely coincidental to the fracture, such as might be the case with a nonossifying fibroma, which is a benign lesion and not uncommonly seen in the lower shaft of the femur This condition is entirely benign and as a rule too small to weaken the shaft of a long bone such as the femur and lead to a fracture with minimal trauma

A simple cyst is another possibility, but as a rule it is much more common in the proximal end of the femur and in the proximal end of the humerus, although it might be located in other areas of bone and, by its large size, with thinning of the cortex, may permit a fracture to occur with trauma that ordinarily would not lead to a fracture If this condition is present, it is possible that there will be some decrease in the size of the cystic lesion during the healing phase of the fracture as it is filled with hematoma and callus In general, however, the cyst is not completely obliterated, and surgical intervention with thorough curettage and packing of the area with bone chips is necessary In the case of a fracture, it is advisable to wait until some healing has taken place before using surgery on the cyst itself

A monostotic fibrous dysplasia or perhaps a polyostotic fibrous dysplasia must also be considered, and because of this possibility it would be wise to take a skeletal roentgen survey to determine whether the lesion is multiple In this case also, healing should take place at a normal rate of time, but, again, particularly in a monostotic case of fibrous dysplasia, surgery after healing has occurred, in the form of curettage and packing of bone chips, may be required

Certain bone tumors will also lead to a cyst-like appearance in the bone and are not so rare, but a very careful history of the child and also observation after the fracture has occurred is necessary to make sure that a tumor is not present that might be malignant Other cyst-like lesions of long bones may be present, such as an eosinophilic granuloma or a xanthomatous lesion

In summary it is this consultant's impression that a cystic condition had been present at the fracture site prior to the fracture and, depending on the type of cystic lesion, may either have been a coincidental finding or actually may have been contributing to the fracture in this area by locally weakening the bone at this point

CEPHALHEMATOMA AND CAPUT SUCCEDANEUM

To THE EDITOR —*What are the prognosis and proper management of caput succedaneum and cephalhematoma? Could either of these conditions be prevented in a spontaneous, normal delivery? What, if any, harm will result from these conditions? How soon, if ever, is a surgical removal of the blood or fluid indicated?* *M D , South Dakota*

ANSWER —Neither cephalhematoma nor caput succedaneum can be prevented in a spontaneous, normal delivery They are due to pressure trauma to the presenting part of the head The former is edema of the scalp tissues, while the latter is hemorrhage under the periosteum No harm will result from either of these conditions The caput succedaneum will disappear in several days, but the cephalhematoma may persist for several months due to some calcification that may occur around its edges Surgical removal of the fluid or blood is not indicated, nor is aspiration

WHITE BLOOD CELL COUNT AND HYPOTHYROIDISM

To THE EDITOR —*In general, is there an increase in the white blood cell count of patients with hypothyroidism?* *Ursula G Mandel, M D , Los Angeles*

ANSWER —No change in the white blood cell count of patients with hypothyroidism has been reported Of course, anemia is frequently encountered in patients with myxedema, this anemia does not respond to therapy with liver and iron but does respond when the myxedema is properly treated with thyroid hormone

TOXICITY OF GRAPHITE

To THE EDITOR —*In regard to a patient who works in a plant where graphite is being ground constantly, please supply information as to whether there is any health hazard associated with this work*

Robert C Steinman, M D , Edison, N J

ANSWER —Graphite is produced when coke or anthracite coal is heated to high temperatures in an electric furnace It is a soft, flaky, grayish-black crystalline form of carbon It has widespread use in industry, but, despite this, there is no evidence that it affects the respiratory tract or causes any systemic disturbance There have been occasional cases of contact dermatitis

USE OF SPONGE RACKS IN SURGERY

To THE EDITOR —*What are the dangers, if any, in the use of sponge racks in surgery? Some surgeons maintain that sponge racks are now considered obsolete because of the danger of cross infection If this is true, what is the best method of taking care of sponges at the time of surgery?*

Russell Buxton, M D , Newport News, Va

ANSWER —If surgical sponges and laparotomy pads are to be counted in an operating room, the conventional types of sponge racks are convenient and practical They should not contribute to cross infection and should be kept as clean as any other piece of operating-room furniture

CORTICOTROPIN IN NEPHROSIS

To THE EDITOR —*When should intermittent therapy with repository corticotropin be discontinued in a 38-year-old woman with classic nephrotic syndrome who has obtained a remission? When first seen about eight months ago, she was very edematous, had 4+ albuminuria, a very high serum cholesterol level, and reversal of the normal albumin-globulin ratio After an intensive course of corticotropin therapy for 10 days she had diuresis, with the result that her weight went from 150 to 102 lb (68 to 46 3 kg), and albumin disappeared from the urine She has remained in remission while receiving less frequent doses of corticotropin and is now receiving 40 units of corticotropin zinc every two weeks Her urine has remained free of albumin, and the serum proteins have reverted to normal However, she continues to complain of headache and does not feel well in general Her blood pressure has remained within normal range throughout*

Billy J Riddle, M D , South Shore, Ky

This inquiry has been referred to two consultants, whose respective replies follow —ED

ANSWER —A nephrotic syndrome in a 38 year-old women is usually an intermediary stage that develops in the course of a chronic glomerulonephritis The underlying disease does not improve even if under influence of corticosteroids the symptoms and signs of the nephrotic syndrome disappear Thus, the favorable reaction upon corticosteroid administration represents only a temporary improvement, just as is the case when the edema and proteinuria of nephrotic individuals disappear after an infection with measles It is, therefore, easily understood that the headache continues and that the general condition has remained unfavorable Since there is a tendency to recurrence of the nephrotic syndrome after cessation of the corticosteroid treatment, it is advisable to continue the administration of the corticotropin zinc every two weeks

ANSWER —The therapeutic result from the use of corticotropin therapy in the 38 year-old woman has been very satisfactory The fact that she has remained free from edema and albuminuria for a few months is most encouraging This consultant has had a similar experience, but with remission occurring after an upper respiratory infection Even after this infection, on a second course of treatment the patient did make a final recovery and has remained well for several years Therefore, it is felt that prevention, if possible, of such infections is of great importance

In regard to further use of corticotropin in the case mentioned, it is suggested that it be withdrawn entirely for a month to six weeks and, if there is no recurrence, indefinitely, but that, if there should be recurrence, it be given in smaller doses of, say, 10 units a day for a period of two to three weeks These cases of complete recovery from renal disease with edema are rare, but they do occur, and when they do they prove that recovery is possible after corticotropin therapy

ANALYSIS OF SPERM FOR MOTILITY

TO THE EDITOR —*What are the possible causes and what can be done to correct low motility of sperm cells? A 42-year-old man has 90 million sperms per cubic centimeter, with a total volume of 8 cc Of these, 10% are bizarre forms with small heads Cytology is normal The sperms were motile 10 hours after ejaculation In the washed condom sample 20% were motile The condom was washed 10 times before use, and the bottom was cut off with scissors to transfer the specimen from the condom to a clean, dry jar Can such a collection be considered adequate? Does the passage of 10 hours cut down the motility? The only other abnormality in the patient is a protein-bound iodine value in the lower limits of normal There is no other evidence of hypothyroidism Radioactive iodine uptake was not measured*

Robert A Heebner, M D , Compton, Calif

This inquiry has been referred to two consultants, whose respective replies follow —ED

ANSWER —No judgment should be passed on the motility of sperm cells in a specimen collected in a condom, even though the latter had been washed several times before use Furthermore, the passage of 10 hours would affect motility even in a normal specimen For an adequate examination, the seminal fluid should be collected in a glass or plastic container and should preferably be examined within two hours after collection

ANSWER —The principal factors affecting motility are (*a*) insufficient sexual abstinence before specimen collection, (*b*) imperfections in collection, such as use of a condom, even though washed repeatedly, and semen contamination by water through washing of the condom, (*c*) age of specimen, the sperm tending to lose motility after six hours, (*d*) faulty spermatogenesis, (*e*) testicular abnormality, and (*f*) defects of the seminiferous tubules involving elements controlling motility and faulty secretions of the prostate and the seminal vesicles If congestion, infection, or poor drainage is found in either the prostate or the seminal vesicles, treatment may improve not only the condition but also the motility of the sperms

DRYNESS OF MOUTH

TO THE EDITOR —*Concerning the Query and Mino Note on "Dryness of Mouth" in* THE JOURNAL, *Feb 16, 1957, page 605, a simple form of therapy tha might be tried would be the administration of drops of saturated solution of potassium iodide thre times a day and 15 mg of neostigmine (Prostigmin bromide three times a day In one week all shoul be well*

Edmund B Sullivan, M D
117 S Second Ave
Mount Vernon, N Y

TO THE EDITOR —In THE JOURNAL, *Feb 16, 1957, pag 605, a letter appears on the dryness of the mout and tongue I believe that the article by Waldma and Pelner on burning sensations of the tongu* (Gastroenterology 10 965, *1948) may help the inquiring physician*

In the cases described in the article cited, th burning of the tongue and dryness of the mout were undoubtedly due to the presence of a thick ropy, tenacious salivary secretion The underlyin cause of these symptoms is not always evident They may be due to a secretory neurosis of the salivar gland, involving a preponderance of sympathet nerve action We can understand this in relation t hyperthyroidism, which is a sympatheticotonic con dition Whatever the basic cause, the production of a thin, watery salivary secretion caused the disappearance of the burning of the tongue and the dryness of the mouth in the cases that are described here In cases where no specific etiological factor is evident, it appears that symptomatic relief is available, which may be permanent or temporary Neostigmine, in doses of 7 5 mg three times daily, is an effective drug in the treatment of burning of the tongue and dryness of the mouth Other therapeutic measures are advisable as indicated in the individual cases The second consultant who answers the query suggests the method used in the article cited but does not actually mention the drug to improve the condition I believe that the therapy included will be helpful

Louis Pelner, M D
1352 Carroll St
Brooklyn 13, N Y

The above comments were referred to one of the consultants who answered the original query, and his reply follows —ED

TO THE EDITOR —*Potassium iodide and neostigmine might be efficacious, however, the side effects and sensitivity provoked by potassium iodide might be unpleasant A 15-mg dose of neostigmine three times a day should be an effective salivary stimulant Again, this dose of neostigmine might result in a rather unpleasant abdominal pain due to increased peristalsis*

« Washington News »

Congress Is Looking into Weight-Reducing Pills • •
Scientists Exchange Views on Food Additives • •
PHS Outlines Program to Combat Asian Influenza • •
Special PHS Consultant for Radiation Problems • •

INVESTIGATION OF WEIGHT REDUCING PILLS

Its investigation of filter cigarettes completed, the Blatnik House subcommittee now is looking into what it describes as false and misleading advertising' on behalf of weight-reducing pills or devices

Chairman John Blatnik (D, Minn) has the same objective as in the first inquiry—to establish that the advertising claims are false and misleading, then to learn what the Federal Trade Commission is doing about the situation

Among technical witnesses was Dr S William Kalb of Newark, N J, who was described by Mr Blatnik as having done outstanding work in the treatment of obesity and having done experimental work on the usefulness of drugs in weight reducing

Dr Kalb emphasized that with most people the only way weight can be reduced is by reducing the caloric intake to the point where less is being eaten than the body is using up He said the various advertised pills do no more than serve as a crutch" to encourage the patients

He told the subcommittee that all persons going on a diet should have physical examinations first, so physicians can adjust the diets to the particular medication being given and to the patients' specific needs He noted that, in the presence of certain organic conditions, some of the products on the market could produce a deleterious effect

As a solution, Dr Kalb suggested that the weight-reducing products be taken from the list of drugs for sale 'over the counter,' and limited to doctors' prescriptions The result, he said, would be little or no sale, as few physicians would prescribe them

In opening the hearing, Representative Blatnik declared

"The Postmaster General has reported that dietless reducing schemes' are the most widely promoted medical fraud today

"Information from authoritative medical sources states that weight cannot be reduced without decreasing food intake and that drugs at best are a crutch to aid in adhering to a diet The Postmaster General has estimated that weight reducing promotions through the mails currently under investigation, are grossing between two and three million dollars a year These mail order promotions appear to be but a small fraction of the sales of similar preparations sold over the counter of drug stores

"A spot check by the committee staff indicates that sales of these preparations in the Washington area alone were about $1 million in the last 12 months The national advertising budget for one of these preparations in 1955 exceeded $1 million

"The medical profession has warned the public of the serious danger to health of excess weight Also, the slim figure is fashionable and much desired, especially by the ladies These two facts combined have created a vast market for preparations which claim that losing weight is easy, particularly when they assure the buyer that he can continue to eat the food he loves and need never go hungry'

PANEL OF SCIENTISTS DISCUSSES FOOD ADDITIVES PROBLEMS

In two days of discussion, a panel of 15 scientists has explored the problems of chemical additives to foods for the benefit of the health subcommittee of the House Committee on Interstate and Foreign Commerce The objective was to develop all the facts possible to aid the committee in its decision on a number of bills aimed at putting various federal safeguards around food additives

The chairman was Dr William J Darby, head of the department of biochemistry and director of the nutrition department of the Vanderbilt School of Medicine He is a member of the A M A's Council on Foods and Nutrition and chairman of the food protection committee of the National Academy of Sciences' food and nutrition board

At the opening of the hearing, Chairman John Bell Williams (D, Miss) pointed out that the scientists had come to Washington at their own expense to help the congressmen 'get a clearer picture of the problems involved' Dr Darby explained that the panel would take up the scientific aspects, "apart from the legal and political considerations involved in the legislation

Under the panel procedure, the scientists made separate opening statements, then discussed problems among themselves, and finally invited questions from members of the subcommittee

Dr Emil M Mrak of the University of California Agricultural Experiment Station described the historical background for additives, which (*a*) improve the flavor, color, texture of foods or add to their convenience for the consumer or (*b*) help the manufacturer to keep the product nutritious, to better preserve it, to reduce its price, or to make it safe for consumption

Growth of urban communities, according to Harvey K Murer of General Foods, was one of the factors that stimulated use of additives He noted that high concentrations of population in cities makes it essential that modern technology guarantee a safe, steady, uniform supply of nutritious foods Even if the additives do not supply additional nutrition or vitamins,' he said, "they accomplish something if they get the foods to the public in good condition and in a form that the people will buy In processing of foods, he said 'we have no right to differentiate between natural chemicals and chemical additives ' He and other witnesses emphasized that the country 'cannot afford to stifle scientific progress in food research' by standardizing testing procedures

Dr F N Peters of the Quaker Oats Company said that "what nature does does not always result in perfection" As a consequence, food researchers actually are constantly attempting to improve on nature He mentioned that from ancient times 'additives" have been used, such as salt, spices, smoke, pectin

When chairman Williams asked the panel if any additives were being used "that have no functional value,' Dr John H Foulger said no, that chemical additives were expensive and that if they didn't serve a specific purpose they would not be introduced Dr Foulger is from E I du Pont de Nemours & Co

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From the Washington Office of the American Medical Association

Dr W C Hueper of the National Cancer Institute raised the question of appetite Others on the panel pointed out that, if foods do not appeal to the buyer, they will not be eaten Dr Mrak added that food has to be something more than a mass

In discussing safety of foods containing additives, members of the panel made these points

1 Every chemical additive is different and has its own particular problems and tests for each may differ, 'safety' and 'toxicity' both are relative

2 Chemists in the food industry make their recommendations only after careful testing steps, some of which were described

3 Scientists in food fields constantly are examining and reexamining their techniques accepting their responsibility and giving more and more thought to it'

Dr Foulger told of a survey he had made of 50,000 workers over a period of 17 years All are du Pont employees, therefore in general exposed to far more chemical hazards than the general population But, because they also are a part of the general population that is exposed to any possible dangers from food additives, they are taking a 'double risk

Yet, said Dr Foulger, their rate of illness per year has constantly decreased, except when the special wartime factors caused a rise If these people's health is not being affected by the combination of food additives and on-the-job chemical exposure, he questioned whether there was any great risk from food additives

PHS SIGNS CONSULTANT ON RADIATION DANGERS

The Public Health Service has signed up a special consultant on the public health aspects of radiation He is Dr Russell H Morgan, radiologist-in-chief at Johns Hopkins University Hospital He is a former associate professor of radiology at the University of Chicago, and, during World War II, he was chief of the radiology section, tuberculosis control division, of UHS

Dr Morgan will be principal advisor to the surgeon general and his staff in the development of the PHS radiological health program This program is concerned with protecting the population from harmful effects of radiation from various sources He likewise will assist the surgeon general in coordinating PHS activities in research, epidemiologic studies, environmental monitoring and technical assistance to the states

Dr Morgan also has been professor of radiology at Johns Hopkins University and counts over 20 years of intensive training in the field of radiology

100,000 GET OASI DISABILITY PAYMENTS

More than 100,000 workers have qualified for disability payments under the Old Age and Survivors Insurance Program and are receiving their first checks this month The program was voted by Congress last year, but was not put into effect until last July 1

To qualify, a person must be between 50 and 65 years of age and be suffering from a disability that prevents him from engaging in substantial activity After age 65, he is eligible for regular OASI retirement pay, for which no disability certification is required

Disabled workers whose claims are approved will be paid for all of 1957, providing they apply before the end of the year After Jan 1, 1958, payment will not be made for any month prior to filing of the claim

PHS STATEMENT ON ASIAN INFLUENZA

Epidemics of Asian influenza are a definite p ability" in the United States next winter, accordin Surgeon General Burney of the Public Health Ser Dr Burney made this appraisal of the situation news conference following release by PHS of a s mary of all the known facts on the disease

Most areas of the United States probably have l exposed by now he said, and there have been 11 reported cases but with only three deaths, a rat lower than prevailed in the Far East epidemics " experience suggests the disease may suddenly beg spread quite rapidly in the fall or winter," the surg general said

To combat the disease, six manufacturers are s ping up their rate of production of a newly devel vaccine and are working toward a goal of 60,00 by February The PHS, noting that this will be about a third enough to give everyone protection, ommended that priority in treatment be given t "whose services are imperative for the care of the and those needed to maintain other essential f tions

A week before Dr Burney disclosed these de the American Medical Association announced it starting a nationwide campaign to (*a*) inform all sicians on how to deal with Asian influenza, (*b*) courage preparation by state and local societie stand-by plans for use in epidemics, and (*c*) co nate physicians programs with public health age and health departments

Dr Harold C Lueth is chairman of the special mittee appointed by the Board of Trustees to d the A M A campaign

Dr Burney said the Department of Health, Ed tion, and Welfare does not plan to ask legislatio allocate the vaccine, preferring to let it be han through the usual channels The precise cost of vaccine has not been set, but the A M A and the and Territorial Health Officers Association have g PHS assurances that no one will be denied prote because of inability to pay

The vaccine remains potent for about 18 month single injection is about 70% effective Protection velops in 10 to 14 days and lasts about a year, acc ing to the PHS

So far temperatures have been 102 to 104 F (38 40 C), accompanied by headache, sore throat, co and muscle aches The fever continues for thre five days, followed by weakness for several more d

The following companies have been licensed to duce the vaccine Eli Lilly & Company, Indianap Lederle Laboratories, New York City, Merck Sha Dohme, Philadelphia, National Drug Company, Pl delphia, Parke, Davis & Company, Detroit, and Pitn Moore Company, Indianapolis

MISCELLANY

A technical bulletin from the Federal Civil Def Administration carries charts showing the percent probability of fall-out during the first 12 hours foll ing the detonation of a nuclear weapon Charts, ba on a U S Weather Bureau survey of winds, are signed as an aid to civil defense planning

During the latest week of record, the Public He Service released 3,511,575 doses of Salk poliomye vaccine, making a total of 55,600,000 doses produ and released since Jan 1 Latest data indicate 10,5 000 doses in the hands of manufacturers, druggi physicians, and health officers

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Lederer, L. G., and Kidera, G. J.: Passenger Comfort in Commercial Air Travel with Reference to Motion Sickness, Internat Rec Med *167* 661 (Dec) 1954

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1 Coan J P McAlpine J C and Boone J A J South Carolina M A 51 417 (Dec.) 1955

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1959 Annual Meeting Atlantic City June 8 12
1959 Clinical Meeting, Dallas, Texas Dec 1 4

AMERICAN

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American Fracture Association El Paso Tex Hotel Cortez Sept 29-Oct 2 Dr H W Wellmerling 610 Griesheim Bldg Bloomington Ill Secretary

American Hospital Association Atlantic City N J Hotel Traymore Sept 30 Oct 3 Dr Edwin L Crosby 18 E Division St Chicago 10 Director

American Medical Writers Association Sheraton Jefferson Hotel St Louis Sept 27 Dr Harold Swanberg 510 Maine St Quincy Ill Secretary

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October

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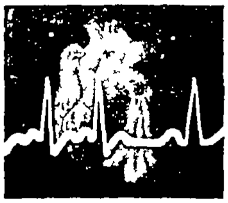
more reasons for the growin



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September

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INTERNATIONAL CONFERENCE ON RADIO-ISOTOPES IN SCIENTIFIC RESEARCH Paris France Sept 9 20 1957 For information address United Nations Educational Scientific and Cultural Organization 19 Avenue Kleber Paris 16 France

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INTERNATIONAL CONGRESS OF THE INTERNATIONAL UNION OF THE MEDICAL PRESS London England Sept 13 14 1957 For information write British Medical Association B M A House Tavistock Square London W C 1 England

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INTERNATIONAL CONGRESS OF PSYCHIATRY Zurich Switzerland Sept 1 7 1957 For information write Prof J Wyrsch Stans (Lucern) Switzerland

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October

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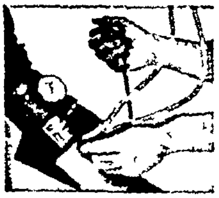

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MAGAZINE—TELEVISION REPORT

The following list of current medical articles in mass circulation magazines on medical subjects is published each week only for the information of readers of The Journal *Unless specifically stated, the American Medical Association neither approves nor disapproves of the articles reported*

MAGAZINES

Sports Illustrated, Aug 5, 1957

A Measure of Fitness by Dorothy Stull

Minimum requirements for school physical education programs are being threatened by the continuous rapid suburban expansion outward from the great metropolitan centers In some cases the suburbs have grown so fast that the powers that be and the citizens groups are not worried about proper physical education facilities, they are worried about whether they will have a school at all

The American Weekly, Aug 18, 1957

How We'll Fight the Asiatic Flu by William Engle

The article reassures readers about the impending flu epidemic You will probably be ordered to bed for from 24 to 48 hours Aspirin and codeine may ease your discomfort and alcohol rubs and ice packs will help reduce your fever If you develop no complications you'll be none the worse for the tussle

The Atlantic Monthly, August, 1957

Fall-out Fever, by Ernest C Pollard Ph D

In a thorough discussion of the H-bomb fall out problem Dr Pollard, chairman of the biophysics department at Yale University, observes All that will be seen by some people is that we may make a case that weapons testing will result in the unnecessary death of twelve people in the United States per year due to leukemia These are twelve unnecessary deaths in perhaps 10,000 leukemia deaths, but they are twelve Are we to say that this is a hateful thing akin to murder, or are we to say that such deaths are simply a necessary sacrifice for our defense, which we as a sturdy race will take in our stride, and so will develop into a tougher future generation? Again the moral lines are hard to draw

The American Mercury, August, 1957

'Poison in Your Water, by Leo Spira, M D

In an article setting forth dangers of adding fluorine to drinking water, the author writes Since fluorine is already present in our average normal food in quantities sufficient to produce chronic illness, it is obvious that any increase in the fluorine content is certain to be dangerous

Lobotomy Is a Dangerous Weapon, by Stephanie Williams

The article questions the wisdom of state and national mental health legislation which the author believes may open the way to use of mental health institutions and lobotomies as political weapons in the hands of the unscrupulous

Why Are You Nervous? by Robert J Needles, M D

'If man is not allowed to decide for himself how he is to live, he will not escape anxiety in his grave

Germs Can Get Sick Too' by Irving J Weiss

The author discusses phage and speculates that scientists may someday be able to use phage to protect mankind from bacteria

The Saturday Evening Post, Aug 10, 1957

Don't Let Medical Bills Bankrupt You,' by E R Leibert

The author tells of how his daughter's illness put a financial burden on his family He advises major medical health insurance for all families, and describes the types of policies available

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PREOPERATIVE SEDATION AND PRODUCTION OF A QUIESCENT STATE IN CHILDREN

PROMETHAZINE-MEPERIDINE-SCOPOLAMINE SEDATION

Max S. Sadove, M.D.
and
Theodore J. Frye, M.D., Chicago

• Previous experience with 3,000 surgical cases showed that meperidine and promethazine together were an extremely satisfactory combination for use as premedication for anesthesia. A method for administering them was evolved from this experience and was applied uniformly in a special series of 200 consecutive pediatric cases. Promethazine, 1.1 mg per kilogram of body weight (0.5 mg per pound), was injected intramuscularly 60 to 90 minutes before induction of anesthesia, meperidine in the same dosage was given intramuscularly 30 to 60 minutes before induction. Scopolamine in doses ranging from 0.1 to 0.43 mg (1/650 to 1/150 grains) according to the body weight was given with the meperidine. This premedication sufficed to eliminate all signs of dread in 93% of the children, suppressed motor activity in 92%, induced sound sleep in 12%, and eliminated all reactions to the environment in 80%. The over all effect, in the opinion of the anesthesiologist, was that induction was facilitated in 80%, unaffected in 17% and delayed in 3%. There was no cyanosis or vascular depression in any case, and only one of the 200 patients vomited. Since a parallel series permitting comparison with other types of premedication remains to be completed, the authors regard this as a preliminary report.

Preoperative sedation of children is a difficult problem of great importance, for the psychic trauma consequent to anticipation of surgery may be as great a hazard to the patient as his original disease. Also, in many instances it is questionable whether the risk from preoperative sedatives, administered to relieve apprehension, may not be as great or greater than the risk from the operation itself.

The search for the ideal in preoperative sedation has been pursued for years. No method has been universally accepted, although many surgeons and anesthesiologists have favorite drug combinations that appear to work well in their hands. The drugs used depend to a considerable degree on the disease under treatment, the physical status of the patient, the operative procedure and the anesthetic technique to be employed, and other factors.

The requisites for preoperative medication of children include (1) safety, (2) simplicity (no excessive problems as to administration, timing, or equipment should attend use of the method), (3) wide applicability, (4) facilitation of anesthetization, and (5) adequate quieting action. Ideally, the child should arrive in the operating room without apprehension or fear, a degree of hypnosis or sleep is desirable, without, however, any depression of vital functions, especially those of circulation and respiration.

The method should be free of untoward effects, such as occasional overdepression or, at the other extreme, inadequacy of sedative action, nausea, vomiting, and constipation. Definite predictability of effect is necessary, so that the percentage of failures per unit number of cases will be minimal.

In the past the entire range of drugs of a sedative type have been used for premedication in children. With the exception of potent narcotic agents, all have been tried and found useful in some cases but not satisfactory for a large percentage of children. Bromides, chloral hydrate, and paraldehyde have been used by many but have failed to approximate the ideal in preoperative sedation.

The avenues of administration employed have included the oral, the intramuscular, the intravenous, and the rectal. Medication by the oral route may be suitable for sedation in other branches of medicine, but it increases the hazard of regurgitation or vomiting

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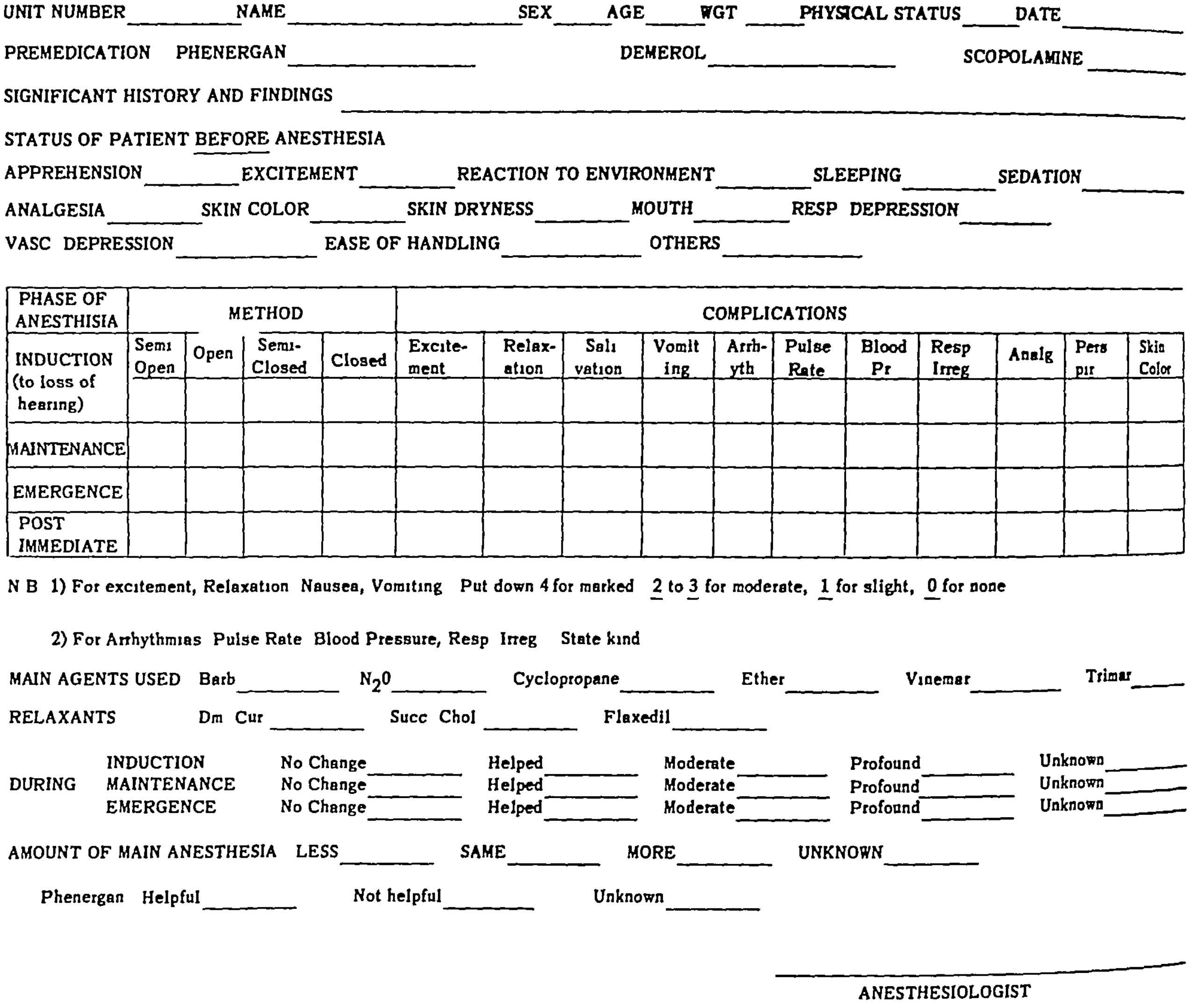
From the Department of Surgery, Division of Anesthesiology, University of Illinois Research and Educational Hospitals.

if used in the preoperative period In a frightened child, absorption of a medicament from the intestine may be slow

The sedatives most commonly employed today are the barbiturates of ultrashort, short, and intermediate duration of action, supplied in the form of capsules, suppositories, and solutions and suspensions administered parenterally or by rectum The ultra-short-acting or the short-acting barbiturates, administered rectally, have proved useful However, with medication by the rectal route there is always the possibility that the drug may be expelled or may not be absorbed or that absorption will be prolonged beyond the period when sedation is required Side-actions, such as slight to severe depression of circulation or respiration or both, have occurred, as well as long-continued somnolence in the postoperative period, and have been definite deterrents The problems of rectal administration in many instances are so troublesome as to render such methods impractical



UNIT NUMBER______ NAME__________ SEX____ AGE____ WGT ____ PHYSICAL STATUS____ DATE______

PREMEDICATION PHENERGAN__________ DEMEROL__________ SCOPOLAMINE______

SIGNIFICANT HISTORY AND FINDINGS ______________________________

STATUS OF PATIENT BEFORE ANESTHESIA

APPREHENSION______ EXCITEMENT______ REACTION TO ENVIRONMENT______ SLEEPING______ SEDATION______

ANALGESIA______ SKIN COLOR______ SKIN DRYNESS______ MOUTH______ RESP DEPRESSION______

VASC DEPRESSION__________ EASE OF HANDLING__________ OTHERS__________

PHASE OF ANESTHISIA	METHOD				COMPLICATIONS												
	Semi Open	Open	Semi-Closed	Closed	Excite-ment	Relax-ation	Sali vation	Vomit ing	Arrh-yth	Pulse Rate	Blood Pr	Resp Irreg	Analg	Pers pir	Skin Color
INDUCTION (to loss of hearing)															
MAINTENANCE															
EMERGENCE															
POST IMMEDIATE															

N B 1) For excitement, Relaxation Nausea, Vomiting Put down 4 for marked 2 to 3 for moderate, 1 for slight, 0 for none

2) For Arrhythmias Pulse Rate Blood Pressure, Resp Irreg State kind

MAIN AGENTS USED Barb______ N_20______ Cyclopropane______ Ether______ Vinemar______ Trimar____

RELAXANTS Dm Cur______ Succ Chol______ Flaxedil______

	INDUCTION	No Change______	Helped______	Moderate______	Profound______	Unknown______
DURING	MAINTENANCE	No Change______	Helped______	Moderate______	Profound______	Unknown______
	EMERGENCE	No Change______	Helped______	Moderate______	Profound______	Unknown______

AMOUNT OF MAIN ANESTHESIA LESS______ SAME______ MORE______ UNKNOWN______

Phenergan Helpful______ Not helpful______ Unknown______

____
ANESTHESIOLOGIST

Work sheet in preoperative sedation of children with combination of promethazine, meperidine, and scopolamine

Intramuscular or oral administration of various barbiturate compounds has become rather popular in recent years However, it is difficult to ascertain the correct dose of barbiturate for a particular child to provide a predictable degree of sedation It has become common practice, therefore, to use slightly more than the conventional dosage, thus, failures are relatively few, but the incidence of excessive sedation in the postoperative period is increased

Investigation into Preanesthetic Quiescence

Background of Present Study—During an investigation of a number of phenothiazine derivatives, among them chlorpromazine, promethazine, and mepazine over the past three years, the potentiating action of these compounds on narcotics and other commonly used premedicants and on agents used to produce basal anesthesia was observed More than a year ago use of promethazine in conjunction with meperidine was initiated, and the series was extended to 3,000 cases[1] The combination proved extremely satisfactory and our confidence in the technique increased Carefully and cautiously, the study was expanded to include pediatric surgical cases With accumulation of cases we evolved a method of administering the various agents in a definite ratio to one another in relation to the body size of the patient Although records of a large number of cases were by this time available, it was felt that for purposes of accuracy another series should be started

Plan of Investigation—The present study was undertaken to evaluate the efficiency of the promethazine meperidine scopolamine combination for preoperative medication of children Two hundred consecutive cases were carefully evaluated A work sheet (see figure) similar to those used previously, was completed for each patient In this study the use of promethazine in 25 to-50 mg doses given orally the evening preceding surgery has provided adequate restful sleep and has eliminated the need of barbiturates in most cases

Dosage—All patients under 12 years of age received routine preoperative medication computed on the basis of body weight and administered without regard to physical status, operative risk or anesthetics to be used (see table) Promethazine, 0 5 mg per pound, was injected intramuscularly 60 to 90 minutes prior to induc tion, meperidine, 0 5 mg per pound, and scopolamine (see table) were administered by the intramuscular route 30 to 60 minutes prior to initiating anesthesia

Results

Results were evaluated according to the sum total of apprehension, excitability and reaction to environment of the patient and the over-all quiescence achieved Each factor in the emotional condition of the patient was appraised, since certain drug combinations may alter some factors without influencing others, yet each must be considered an integral part of the entire response to sedation The anesthesiologist was instructed to be as objective as possible in each case It was our desire not only to record the absence or the presence of the various physiological and psychological phenomena but also to evaluate the degree to which the various reactions were present The psychophysiological functions involved were therefore graded by a numerical system (see figure) Naturally, our interest was centered on the degree of preoperative sedation and quiescence attained

Apprehension—A state of fear or dread within the individual was not discernible in 93% of the patients, was slight in 4% and was severe in 3% When there are considered such factors as the type of patients comprising the series, the economic strata from which they came, and the fact that many of them were hurried into the hospital immediately prior to the time of induction, the effectiveness of the premedication for prevention or relief of apprehension was impressive

Excitement—Motor activity, especially as an expression of fear and apprehension, was absent in 92% of the patients, was slight in 4%, and was moderate to severe in 4% This drug combination may be considered very effective in preventing excitement, particularly when it is realized that most of the patients in this series were treated under clinical conditions common to a large active service in a metropolitan area, in many instances, because of the extremely heavy work load, timing of the premedication could not be ideal

Sleep Before Induction—The presence or absence of sleep prior to induction was observed (With other types of premedication, sleep is essentially synonymous with adequate sedation) In this series, less than half of the patients were asleep or in a sleep-like state on arrival in the operating room, only 12% were soundly asleep, and 30% were sleeping intermittently Thus, the majority (58%) were fully conscious but quiet and tractable immediately prior to induction

Sedation and Quiescence—Sedation and quiescence were evaluated on the basis of the sum total of all observable phenomena indicating psychomotor depression Seventy-three per cent of the patients were moderately to profoundly sedated, 22% were slightly sedated, and 5% showed no sedation In the over-all assessment of the sedative response, it was estimated that the quiescence produced was adequate in 92%

Reaction to Environment—Reaction to the operating-room environment is an excellent indication of the true sensitivity of the individual to his surroundings The quiescence of the patient was severely tested during the positioning on the table, injection of drugs, placement of the needle for intravenous injection starting of the infusion, and other necessary manipulations immediately prior to induction Under many forms of preanesthetic medication, a child may appear to be adequately sedated, yet, he may 'break through when he is manipulated in any way, as during the routine preparations in the operating room

Routine Dosage of Promethazine Meperidine and Scopolamine Computed on Basis of Body Weight

Age	Weight Lb	Promethazine Mg	Meperidine Mg	Scopolamine Grains
Up to 2 mo	7 10	3 5 5 0	3 5 5 0	1/650
2-4 mo	10-14	5 0 7 0	5 0- 7 0	1/450
4-6 mo	14 16	7 0 8 0	7 0- 8 0	1/450
6-12 mo	16 22	8 0-11 0	8 0-11 0	1/450
12 18 mo	22 25	11 0 12 5	11 0 12 5	1/400
18-24 mo	25-27	12 5 13 5	12 5-13 5	1/400
2 3 yr	27 30	13 5-15 0	13 5 15 0	1/300
3 5 yr	30-40	15 0-20 0	15 0 20 0	1/300
5-8 yr	40-55	20 0-27 5	20 0 27 5	1/150
8-10 yr	55-65	27 5-32 5	27 5 32 5	1/150
10-12 yr	65 80	32 5 40 0	32 5-40 0	1/150

In 80% of the patients in this series there was no reaction whatever to the environment Sixteen per cent were slightly disturbed, and only 4% registered a moderate to severe protest to the final preparations for operation The type of premedication used in this series, therefore, is excellent for the purpose of diminishing the reaction of the child patient to environmental stimuli

Facilitation of Anesthetization—The evaluation of the ability of this method of preoperative sedation to facilitate anesthetization was based purely on clinical impressions The phases are listed on the work sheet (see figure) under induction, maintenance, and emergence

Induction Induction was facilitated, in the opinion of the anesthesiologist, in 80% of the cases In 20% the premedication was considered not to be helpful, and in 3% of these there was an impression of actual delay in induction

Maintenance Maintenance was facilitated in 90% of the cases, and in 10% no opinion could be expressed as to the value of the premedication On evaluation of the amount of anesthetic employed in this series, it was the impression that less was required for maintenance in 62% of the cases, in 37 5% the amount required deviated in no way from the standard, and in only one case (0 5%) did the anesthesiologist feel that more of the agent was required than usual

Emergence Many undesirable side-effects from excessive preoperative sedation are seen during emergence from anesthesia, including delay in recovery, excitement, disorientation, panic, nausea, and vomiting It was to be expected that emergence, in a series of this size, would be delayed in at least a few patients and that for others there would be 'no change' or the effects would be recorded as 'unknown However, it was considered that the quiescence produced by the preoperative medication contributed to a smoother, quieter emergence in 80% of the patients, in only 20% was the method noncontributory or the effect unknown

It is believed that, because less anesthetic was required for maintenance of anesthesia in a high percentage of the patients, emergence was more rapid in these patients, with less hypoxia and other evidences of depression of vital centers than would have occurred with conventional preoperative techniques It also has been suggested that the potentiating activity of promethazine on the analgesic drug administered before operation may have been carried over into the postoperative period, so that the patient had the benefit of an additional analgesic effect and therefore a more comfortable emergence from anesthesia

Respiratory Depression —Potentiation of the depressant effects of the analgesic and anesthetic agents by promethazine was evaluated by clinical observation We were vigilant for adverse influences on the vital functions, especially when respiratory depressants were used during anesthesia In 97% of the patients no respiratory depression attributable to the premedication was clinically discernible Only 3% showed a slight to moderate respiratory depression that might have been remotely related to the preoperative medication

Vascular Depression —The children were observed for changes in peripheral pulse rate, blood pressure, capillary refill time, and other phenomena indicating alteration of the circulatory mechanism None showed any indication of vascular depression Skin color was watched with particular attentiveness, because peripheral cyanosis has occurred in adults under premedication with a phenothiazine compound but has not been seen in children None of the patients in this series became cyanotic, and in only one was the skin color in any way unsatisfactory This child, who had multiple congenital deformities and relative anemia and had had a number of previous operations, showed pallor prior to induction

Vomiting —Throughout the entire period of observation vomiting occurred in the case of only one patient (0 5%) in the immediate postoperative period This is a noteworthy finding, since a greater incidence of emesis would ordinarily be expected in a series of 200 patients The rarity of vomiting in this series certainly is an indication of the antiemetic properties of promethazine Also, an important factor in the control of emesis was the smoother maintenance of anesthesia with less amount of anesthetic, and a consequent reduction of hypoxia and vital depression Local tolerance to the intramuscular injection of promethazine was excellent There was no pain on injection and no evidence of local tissue reaction

Comment

Final Evaluation —In the final summation of the usefulness of promethazine in premedication, the anesthesiologist indicated on the work sheet his opinion as to the helpfulness or the lack of helpfulness of the compound Promethazine was considered definitely helpful in 85% of the cases, was felt not to be helpful in 2%, and in 13% no conclusion as to the over all value of the drug could be reached

Additional Observations —If sedation is inadequate, patients tend to show overactivity in the postoperative period Prior to inception of this series, it was observed in routine work of the operating room, and confirmed during this study, that, if small divided doses of approximately 0 5 mg of promethazine per pound of body weight were administered by slow intravenous injection, an excellent state of general quiescence without vital depression developed within 10 minutes The patient became cooperative, responded to the spoken word, and was easily manageable, in contrast to the previous situation

Summary and Conclusions

In a clinical evaluation of the preoperative sedation and quiescence produced by a combination of promethazine, meperidine, and scopolamine administered to 200 children in dosage determined by body weight, various psychophysiological phenomena were closely observed and tabulated The study has been based on clinical observations As such, it is fraught with the hazards common to all studies of this type It is now being expanded under more controlled conditions Our justification for publishing the study, prior to the completion of the controlled study, is our sincere belief that, although the percentage of various conclusions may change, the over-all individual conclusions will remain valid

Observations were made of the effect of promethazine-meperidine-scopolamine premedication on anesthesia and the postoperative period According to these observations, respiratory depression of a clinically discernible type was rare and mild, being present in only 3% of the patients Vascular depression was not observed Vomiting in the operative and postoperative periods was markedly diminished to the degree of being almost nonexistent The amount of anesthetic required to obtain and maintain adequate anesthesia was diminished in more than half of the cases

Inasmuch as more than 90% of the children were free from apprehension through use of the preoperative sedation, this psychic factor was practically eliminated Excitement or motor activity, especially as an expression of fear, was present in less than 10% of the patients Reaction to hospital and particularly operating-room environment (which is one of the phenomena that best measures the efficiency of pre operative medication) indicated that more than 80% of the children were excellently tranquilized. Actual sleep or sleep-like state was present in a little less than 50% of the cases. Sedation was adequate in all but 5%.

As to final evaluation, in more than three-fourths of the patients anesthetization was facilitated as to induction, maintenance, and emergence from anesthesia by means of preoperative sedation with promethazine, meperidine, and scopolamine. It was the opinion of the anesthesiologists that this drug combination was helpful in approximately four-fifths of the cases studied.

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The promethazine used in this study was supplied as Phenergan by Wyeth Laboratories, Philadelphia, the meperidine used was supplied as Demerol by Winthrop Laboratories, New York.

Reference

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MICROCOCCIC (STAPHYLOCOCCIC) INFECTIONS IN A GENERAL HOSPITAL

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• *Micrococcic infections resulting from cross infection within hospitals may be the most serious current communicable disease problem. Micrococci are remarkably well adapted for cross infection in a hospital environment, remaining viable and even virulent in a dried state on dust or bedding. Any break in the skin, surgical or traumatic, including that made by intravenous catheters, appears to open the way for micrococcic invasion, and in infants invasion may take place through normal, intact skin. Hospital-acquired infections seem largely preventable, and the application of control measures including isolation of hosts and sterilization of vectors must be put into effect.*

Micrococcic (staphylococcic) infections of hospitalized patients are a subject of increasing concern to the medical profession. Reports have appeared in Canadian, British, and Australian literature implicating micrococci in certain types of hospital-acquired infections, such as surgical wound infections,[1] impetigo neonatorum, and maternal breast abscesses.[2] Similar studies have been published in the United States.[3]

Though specific types of micrococcic infection have been reported, there is no current description in medical literature of the scope of the problem of such infections in a general hospital. Information is not available concerning the approximate incidence of such infections, nor is a description of the types of infections commonly encountered and their severity. Such data are valuable in order to provide perspective to the problem, to stimulate investigation of various means of control, and to permit evaluation of preventive measures. With these objectives in view, data were collected in the King County Hospital from Nov. 16, 1955, through February, 1956, and serve as the basis of this report.

Methods and Materials

All hospital patients with newly acquired micrococcic infections proved by culture were followed in this study. The principal method utilized was the investigation of every culture positive for micrococci, which was routinely isolated by the hospital laboratory, in order to determine its source, the clinical condition of the patient, the time of onset of infection, and other data. With the information thus gained, it was generally possible to determine whether the source of the culture was a clinically significant micrococcic infection or if it had been derived from some other source, such as a nasal carrier of micrococci.

Patients were included in this study only if they had definite clinical infections from which coagulase-positive micrococci were isolated in large numbers. Patients who had multiple micrococcic infections were listed only once. Such patients were classified by what appeared to be the most serious of their infections. Coagulase-negative micrococcic isolations were disregarded. Patients who had chronic micrococcic infections acquired prior to the study were not counted in tabulations, though many cultures from such patients were obtained during the study. Fifteen of these patients were investigated and are considered separately in the text.

It was found that patients with recently acquired micrococcic infections fell into one of three fairly distinct and significant groups: (1) those who acquired their infections outside the hospital and who were admitted or were seen in the outpatient department, (2) those in whom no evidence of infection was present on hospital admission but who developed infections one or more days after admission, and (3) those whose infections appeared within 60 days after discharge from the hospital. Six hospital employees who developed micrococcic skin infections are included in the group of patients whose infections appeared while in the hospital. Seven patients who apparently acquired infections in other hospitals are not listed.

During the period of the study and for approximately one month thereafter, all deaths among patients in the series were noted and reviewed in detail with a pathologist to determine the relationship, if

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any, of the micrococcic infection to the patient's death Only those deaths in which the infection appeared to play a significant role are included in this report

The sensitivities of micrococci to antibiotics were tested by the disk diffusion technique, described elsewhere[4] Antibiotics used in determining sensitivities were tetracycline, chloramphenicol, streptomycin, *penicillin, erythromycin, and bacitracin For the pur*poses of this study, organisms moderately or markedly resistant to an antibiotic were regarded as resistant to that antibiotic

TABLE 1 —*Types of Micrococcic Infections Found Among 189 Patients from Nov 16, 1955, Through February, 1956*

Type Major Micrococcic Infection	Total No	Micrococcic Infections Group 1†	Group 2	Group 3	Deaths* Group 1	Group 2	Group 3
Surgical wound	37	1	26	10		5	1
Pneumonia	14	2	12			8	
Septicemia	7	1	6		1	3	
Skin infection							
Infants	29	3	18	8			
Adults	50	29	17	4		2	
Breast abscess							
Infants	3		2	1			
Mothers	6		2	4			
Infection of burns	6	1	5			1	
Miscellaneous infections	37	20	12	5	1	2	
Total	189	57	100	32	2	21	1

* Does not include several deaths among infected patients whose death did not appear related to micrococcic infection

† Group 1 infections acquired outside hospital group 2 infections appearing during hospitalization group 3 infections appearing after discharge

Bacteriophage typing of a sample of micrococci was performed by Major George Navarre, Branch Sixth Army Area Medical Laboratories, Fort Lewis, Wash Major Navarre utilized 26 bacteriophages, the majority of which were derived from the reference strains of Dr John Blair, New York City

Results

One hundred eighty-nine patients developed micrococcic infections from which material was cultured during the period of this investigation The number of infections occurring each month was relatively constant and was in the order of 55 per month

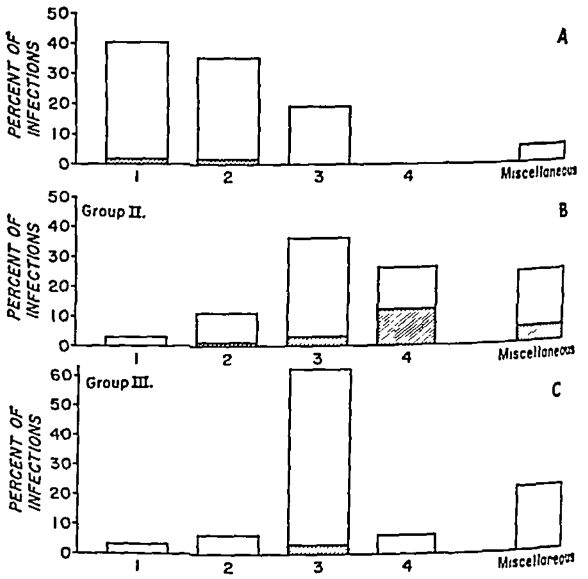
Table 1 summarizes the types of micrococcic infections in each of the above-mentioned three groups—group 1, those acquired outside the hospital, group 2, those developing during hospitalization, and group 3, those appearing after discharge

Group 1, Infections Acquired Outside Hospital—Fifty-seven infections, comprising 30% of the total, were acquired outside the hospital The majority of these were skin infections of adults, including many carbuncles and infected abrasions or lacerations treated in outpatient clinics The bulk of the remaining infections in this group, classified as miscellaneous, is comprised largely of urinary tract infections, otitis media, conjunctivitis, and lymphadenitis

Such infections acquired outside the hospital were usually not severe This is reflected by the relatively low mortality rate of about 4% Micrococcic septicemia was presumably responsible for the two deaths which occurred in the group One of the patients who died was a 77-year-old diabetic woman She had been febrile when admitted, and died two days later A Micrococcus sensitive to all antibiotics was cultured from her blood The other patient had entered with symptoms of septicemia and meningitis after a short history of severe, spiking fever, preceded by persistent carbuncles for several weeks Culture of his spinal fluid was positive for micrococci resistant only to penicillin He died on the day after admission. At autopsy, miliary micrococcic abscesses were found in several organs, including the kidneys and brain Since no positive blood culture was obtained from this patient, he is listed in the miscellaneous column in table 1

The resistance to antibiotics of infections in group 1 represents the antibiotic resistance of micrococcic infections in outpatients of the King County Hospital Forty per cent of these infections were caused by organisms sensitive to all antibiotics, and 35% were resistant only to penicillin (table 2 and the figure) Nineteen per cent were resistant to tetracycline, streptomycin, and penicillin, a pattern frequently seen in hospital-acquired infections In several instances of infections with this resistant pattern, other members of the patient's family had recently been hospitalized, thus suggesting that the hospital may have been the indirect source of some of the infections in this group

Group 2, Infections Appearing During Hospitalization—Infections appearing during hospitalization, totaling 100, made up the majority of infections encountered These micrococcic infections appeared as early as the second day of life in a newborn infant and, in the extreme case of a convalescent poliomyelitis patient, 13 months after admission For those patients for



Antibiotic sensitivity patterns of micrococcic infections *A*, Group 1 (57 infections), those acquired outside the hospital *B*, Group 2 (100 infections), those appearing during hospitalization, *C*, Group 3 (32 infections), those appearing after hospital discharge 1 stands for sensitivity to all antibiotics, 2, resistance only to penicillin, 3, resistance to tetracycline, streptomycin, penicillin, 4, sensitivity only to bacitracin, and miscellaneous, other resistance patterns The shaded areas indicate deaths.

whom the interval from admission to the onset of infection could be clearly determined, the median interval was 10 days

Twenty-six infections, a quarter of the group, were surgical wound infections Such infections most often appeared in the relatively avascular tissues of elderly patients, but infections also occurred in young and apparently healthy persons Five patients with surgical wound infections died In each of the deaths, the wound infection was a contributing factor or major cause of death

In 12 known instances, pneumonia was the major micrococcic infection The pathological picture in fatal cases was usually bilateral bronchopneumonia of the lower lobes In severe cases, the pneumonia was necrotizing and hemorrhagic, occasionally with abscess formation In several fatal cases of pneumonia with this pathological picture, material was not taken for culture at autopsy, thus these cases are not included in the statistics of this report Also, several patients dying with other micrococcic infections appeared to have micrococcic pneumonia as a terminal complication It is probable that the incidence of micrococcic pneumonia is considerably higher in this hospital than these data indicate

TABLE 2 —*Antibiotic Sensitivity Patterns of Micrococcic Infections*

	Types of Infection											
	Group 1*				Group 2				Group 3			
	Infection		Deaths		Infection		Deaths		Infection		Deaths	
Sensitivity Pattern	No	%	No	%	No	%	No	%	No	%	No	%
Sensitive to all antibiotics	23	40 4	1	1 8	3	3 0			1	3 1		
Resistant only to penicillin	20	35 1	1	1 8	11	11 0	1	1 0	2	6 2		
Resistant to tetracycline streptomycin penicillin	11	19 3			36	36 0	3	3 0	20	62 6	1	3 1
Sensitive only to bacitracin					26	26 0	12	12 0	2	6 2		
Other resistance patterns	3	5 2			24	24 0	5	5 0	7	21 9		
Total	57		2	3 6	100		21	21 0	32		1	3 1

* See table 1 for explanation of groups

Of the 12 patients with pneumonia who are listed, eight died All of them were debilitated by degenerative diseases or by serious trauma In six instances the lung infection was preceded by cerebral injury with coma

In the entire study, 12 patients were seen with blood cultures positive for micrococci, of these, 6 died Eleven of the patients with bacteremia had micrococcic infections that appeared during hospitalization In five such instances of bacteremia, a major micrococcic infection was present, such as pneumonia or a wound abscess, which was considered the source of the disorder The condition of those patients who had positive blood cultures without an obvious source of the disorder is classified as septicemia Six of the patients with 'primary septicemia are listed in group 2, three of them died In these cases of primary septicemia, there appears to be a suggestive epidemiologic relationship to intravenous therapy All of these patients had received fluids intravenously More significantly, a femoral catheter had been used in one case, a venous "cut-down' in two, and in one continuous intravenous therapy had been given from admission until death Intravenous therapy may well provide a way for micrococci in a patient's environment to enter his blood stream

Eighteen skin infections of infants occurred during this investigation in group 2 In addition, two breast abscesses occurred in mothers and two in infants

These were a portion of a prolonged outbreak of micrococcic infections originating in the nursery Infections of infants appeared usually as pustules, infected blebs, or furuncles Nearly all of these infections in infants and mothers had identical antibiotic sensitivities, with resistance to tetracycline, streptomycin, and penicillin Several infections were severe enough to require readmission to the hospital or prolongation of the postpartum or neonatal hospitalization period by several days No deaths occurred, however, in this group

Skin infections of adults, including infected decubitus ulcers, infections of burns, and the miscellaneous group of infections, including those of the urinary tract, comprise the remainder of infections appearing in hospitalized patients Two of the adults with skin infections died, probably as a result of septicemia in both cases, though positive blood cultures were not obtained The two deaths occurring in the group with miscellaneous infections were both in patients with severe micrococcic parotitis

The severity of infections in group 2 is reflected by the mortality rate of patients in this group (tables 2 and 3) Of the 100 patients in the group, 21 died In each of these 21 deaths, the micrococcic infection played a role—a major or determining role in 15 cases The mortality rate in this group was 21%, as compared with the mortality rate of less than 4% for infections acquired outside the hospital (table 2) The over-all mortality rate in groups 2 and 3, considering only deaths related to micrococcic infection, is 17% (22 deaths out of 132 cases)

The severity and prolonged morbidity of certain micrococcic infections is also evidenced by 15 patients who had developed chronic infections prior to this study Twelve of the patients evidently had developed their infections while in this hospital These micrococcic infections had persisted for periods varying from 4 days to 4 5 years before the initiation of this study, averaging 10 5 months in duration Six of the patients, including three with postsurgical osteomyelitis, had required several months of hospitalization because of their infections Even when such patients were not hospitalized, their infections appeared to cause considerable disability and economic loss

The susceptibility to antibiotics of organisms causing infections occurring in the hospital contrasted sharply with the antibiotic sensitivity of organisms causing infections acquired outside the hospital (table 2 and the figure) The organisms causing only 3% of the infections which appeared in the hospital were sensitive to all antibiotics, and those causing 11% were resistant only to penicillin The organisms causing 36% were susceptible to chloramphenicol, erythromycin, and bacitracin and resistant to tetracycline, streptomycin, and penicillin The organisms cultured in 26% of the infections were sensitive only to bacitracin A remarkably high mortality rate of 46% (12 deaths out of 26 cases) was observed in patients with infections caused by organisms susceptible only to bacitracin

The remaining 24% of hospital-acquired infections were caused by organisms with various other patterns of antibiotic resistance Most of these were resistant to two or more antibiotics

TABLE 3 —*The 24 Deaths Among 189 Patients with Micrococcic Infections*

Case No	Age, Yr	Service	Date Death	Clinical and Pathological Diagnosis	Source of Culture	Source of Infection*	Relationship of Micrococcic Infection to Death: Contributing Factor: Minor	Contributing Factor: Major	Major Cause
1	19	Surgery	11/23/55	Third degree burns head neck trachea major bronchi and hands micrococcic bronchopneumonia and septicemia	Blood	Hospital		X	
2	70	Surgery	11/25/55	Depressed skull fracture with subdural hematoma and multiple cerebral contusions infection of fracture site bronchopneumonia chronic alcoholism status epilepticus	Infection of scalp at fracture site	Hospital	X		
3	86	Surgery	12/11/55	Perforated peptic ulcer wound dehiscence localized peritonitis	Peritoneal cavity	Hospital	X		
4	38	Surgery	12/14/55	Idiopathic epilepsy coma of unknown etiology aspiration pneumonia with superimposed severe bilateral micrococcic bronchopneumonia and lung abscess	Left lung	Hospital		X	
5	87	Surgery	12/15/55	Myocardial infarctions old and recent decubitus micrococcic abscess hips and sacrum with probable terminal septicemia cellulitis left arm	Decubitus ulcer septic liver	Hospital		X	
6	82	Medicine	12/19/55	Acute pyelonephritis septicemia abscesses of kidney and ribs empyema	Rib abscess	Hospital		X	
7	75	Surgery	12/24/55	Metastatic carcinoma of colon acute suppurative bilateral micrococcic parotitis	Parotid abscess	Hospital	X		
8	47	Medicine	1/ 2/56	Acute myeloblastic leukemia pneumonia in left upper lobe micrococcic septicemia, gastrointestinal bleeding	Blood	Hospital		X	
9	87	Medicine	1/ 2/56	Acute pancreatitis with suppuration micrococcic septicemia with multiple abscesses	Blood urine abdomen rib cage	Hospital		X	
10	54	Surgery	1/ 4/56	Third degree burns of 40% of trunk and neck micrococcic infection of burn sites	Burn infection	Hospital		X	
11	59	Surgery	1/ 5/56	Multiple fractures of skull pelvis and legs confluent micrococcic bronchopneumonia and septicemia	Sputum blood	Hospital		X	
12	90	Medicine	1/23/56	Adenocarcinoma of stomach bilateral micrococcic bronchopneumonia	Lung exudate	Hospital	X		
13	83	Medicine	1/23/56	Empyema of gallbladder with rupture and abscess formation lipid pneumonia with superimposed acute micrococcic bronchopneumonia bilateral	Bronchial tree	Hospital	X		
14	68	Surgery	1/31/56	Fracture of hip with open reduction large abcess at operative site myocardial infarction	Hip abscess	Hospital		X	
15	81	Surgery	2/ 4/56	Adenocarcinoma of colon resected micrococcic infection of abdominal wound micrococcic peritonitis micrococcic bronchopneumonia bilateral necrotizing transitional cell carcinoma of bladder encephalomalacia	Wound infection lung	Hospital		X	
16	71	Medicine	2/ 5/56	Chronic pyelonephritis massive terminal micrococcic bronchopneumonia	Lung	Hospital		X	
17	56	Medicine	2/ 7/56	Chronic alcoholism with superior hemorrhagic polioencephalitis (Wernicke s disease) micrococcic bronchopneumonia on right probably secondary to aspiration	Lung	Hospital	X		
18	91	Surgery	2/ 7/56	Generalized arteriosclerosis diabetes mellitus peripheral gangrene micrococcic infection of amputation stump	Wound infection at amputation site	Postdischarge	X		
19	77	Medicine	2/10/56	Micrococcic septicemia with septic thromboses of superior mesenteric and cerebellar arteries diabetes mellitus with mild acidosis	Blood	Outside			X
20	40	Medicine	2/14/56	Furunculosis micrococcic septicemia with miliary abscesses micrococcic meningitis bronchopneumonia	Spinal fluid	Outside			X
21	74	Surgery	2/18/56	Diabetic gangrene of right leg with multiple amputations and micrococcic wound infections micrococcic bacteremia	Wound infections knee joint blood	Hospital			X
22	86	Medicine	2/23/56	Micrococcic parotitis micrococcic cellulitis of buttocks gastrointestinal bleeding source undetermined chronic brain syndrome	Stensen s duct	Hospital		X	
23	58	Medicine	2/26/56	Cerebral vascular accident dysphagia bilateral micrococcic bronchopneumonia of lower lobes	Lung	Hospital		X	
24	48	Surgery	3/ 3/56	Peripheral arteriosclerosis multiple arterial grafts micrococcic wound infections with septicemia	Wound infections pus in peritoneal cavity	Hospital			X

* Outside refers to those infections acquired outside hospital Hospital to those appearing during hospitalization Postdischarge to those appearing after discharge

Group 3, Infections Appearing After Discharge—The third major group of micrococcic infections is composed of those appearing after discharge from the hospital Thirty-two patients had infections in this group Their infections became evident from 2 to 60 days after discharge Ten of these patients had infections of surgical wounds, one of them died of a wound abscess while in a convalescent hospital Skin infections of eight infants and the breast abscesses of four mothers and one infant comprise most of the remainder of the group

The antibiotic-resistance pattern of the causative organisms in this group of infections is similar to that for the infections appearing in hospitalized patients (table 2 and the figure) In only 3 of the infections (9%) was there no antibiotic resistance or resistance only to penicillin, in contrast to 43 (75%) of the infections acquired before hospital admission The remaining 91% of infections appearing after discharge were caused by organisms moderately to markedly resistant to antibiotics The majority (62%) of the organisms were sensitive only to chloramphenicol, erythromycin, and bacitracin

Bacteriophage Typing

Bacteriophage typing of a sample of cultures from micrococcic infections was utilized to investigate the possibility that one or two strains were causing the majority of infections Micrococci isolated from the infections of 58 of the patients in this series, predominantly during January, 1956, were subjected to bacteriophage typing

It is apparent from table 4 that, at least during the month of January, no single bacteriophage type was responsible for a majority of infections Forty per cent of the cultures were not typable with the bacteriophages used Twenty-four per cent, or 14 isolations of micrococci, were typed in 9 different phage patterns One of these patterns (53/54/77/VA4) appeared three times, three patterns appeared twice, and each of the other five patterns was observed only once

The remaining 36% of infections, however, were evidently caused by the same bacteriophage type of Micrococcus, type 52/42B/44A Micrococci of this bacteriophage type appear to have caused many recent outbreaks of micrococcic infections in nurseries in the United States[5] In this hospital, 8 of the 21 isolations of this bacteriophage type were cultured from material drawn from the infections in newborn infants or their mothers Thirteen strains of micrococci of this type appeared in other groups of patients, including a culture from the blood of an adult who died of micrococcic septicemia Seven of the isolations of this bacteriophage type occurred in persons who evidently acquired their infections outside the hospital

It was of interest to note the relationship of bacteriophage types to antibiotic sensitivity patterns Of the 21 cultures of bacteriophage type 52/42B/44A, 16 had the same antibiotic sensitivity pattern—resistance to tetracycline, streptomycin, and penicillin and sensitivity to chloramphenicol, erythromycin, and bacitracin Comprising half of these 16 were the 8 from infections whose source appeared to be the nursery Three micrococcic isolates of this bacteriophage type were sensitive to all antibiotics tested, and two were resistant to all antibiotics except bacitracin No other correlations were evident between antibiotic sensitivity and bacteriophage type, with the possible exception that, of nine cultures sensitive only to bacitracin, six were nontypable

Source of Infection

The source of the micrococci causing infection within the hospital is a subject of critical importance It has been suggested that those hospitalized patients who acquire micrococcic infections are normal carriers of coagulase-positive micrococci, which are harmless during normal activities but are enabled to produce clinical disease because of a change in the patient's resistance after entering the hospital, e g , through surgical incision of the skin or from the results of prolonged bed rest, such as the pooling of secretions in the lungs or pressure necrosis of cutaneous areas

However, this appears unlikely in this study, since the antibiotic-sensitivity patterns of micrococci isolated from infections acquired within the hospital were found to be strikingly different from that of micrococci causing infections acquired outside the hospital In another recent study, to be published separately, we found that none of 118 newly admitted patients were demonstrably nasal or skin carriers of micrococci resistant to antibiotics other than penicillin It would seem quite improbable that patients who developed infections in the hospital entered the hospital carrying highly resistant micrococci Thus, on the basis of this indirect evidence, one may presume that the micrococci causing infections of hospitalized patients are different from those which the patients may have carried into the hospital, differing at least in their sensitivity to antibiotics

It is reasonable to consider whether antibiotic therapy of the hospitalized patient could account for this difference by inducing antibiotic resistance in bacteria normally carried by the patient If this were true, it would be essential that antibiotic resistance develop very rapidly in order to account for the early appearance of infections due to antibiotic-resistant strains The median interval from admission to signs of infection was only 10 days in this study Also, it would be expected that the type of antibiotic resistance should bear a close correlation to antibiotics

TABLE 4 —*Distribution of Bacteriophage Types by Type and Source of Infection*

Type of Infection Cultured	Bacteriophage Types									
	52/42B/44A			Other Types			Nontypable			
	Group 1*	Group 2	Group 3	Group 1	Group 2	Group 3	Group 1	Group 2	Group 3	Total
Surgical wound			2		1	1		7	3	14
Pneumonia					1			2		3
Septicemia		1			2			1		4
Skin infection										
Infants	1	4	2		1				1	9
Adults	4	2		4	1		4	2		17
Breast abscess										
Infants		1	1							2
Mothers										
Infection of burns							1	1		2
Miscellaneous infections	2		1	2	1			1		7
Total	7	8	6	6	7	1	5	14	4	58
	21			14			23			

* See table 1 for explanation of groups

the patient had received Neither of these conditions has been found to exist, either in our experience or in that of other investigators Finland[6] states that the acquisition of increased resistance to antibiotics during treatment occurs infrequently with most of the antibiotics Knight and Collins[7] found that patients became nasal carriers of micrococci with antibiotic-sensitivity patterns unrelated to antibiotics the patient had received They concluded that antibiotic therapy, by eliminating normal, antibiotic-sensitive flora, facilitated colonization of the patient's nasal mucosa by resistant micrococci which are prevalent in the hospital environment

The mechanisms of mutation and selection of antibiotic-resistant bacteria probably play a major and continuing role in the recruitment of new resistant strains to the population of hospital micrococci Neither mechanism, however, seems to play an immediate role in most hospital-acquired infections Instead, most such infections are probably the result of the transmission of antibiotic-resistant strains from patient to patient or from personnel to patient[8] Studies with bacteriophage typing of micrococci support this conclusion[6]

Micrococci are remarkably well adapted for cross-infection in a hospital environment They will evidently remain viable, and may remain virulent, in a dried state or on dust, bedding, or other fomes for months or years[9] They may reside for long periods in nasal passages of hospital personnel or patients[10] Once they succeed in producing an infection, they apparently multiply quickly, and, because of failure to isolate most such infected patients, the infecting organisms are probably disseminated in enormous numbers They may be transferred directly from patient to patient or from patients to personnel on contaminated (though grossly clean) hospital blankets (which are often not laundered for six months or more) serving many patients during this period[11] Even when laundered, blankets may remain contaminated[12] Hospital mattresses may be another important reservoir of antibiotic-resistant bacteria[9] Thus, numerous opportunities for cross-infection of micrococcic infections exist in hospitals and provide an adequate explanation for the prompt appearance of infections resistant to multiple antibiotics The very fact that most hospital-acquired antibiotic-resistant infections are probably the result of cross-infection, however, implies that such infections are largely or entirely preventable

Over half of the infections reported in this series appeared in hospitalized patients and thus may have been preventable These were the more serious infections and caused most deaths related to infection Also possibly avoidable were the 32 infections appearing within 60 days of hospital discharge Most of the organisms isolated from this group (91%) showed patterns of antibiotic resistance unusual for organisms causing infections acquired before hospital admission and resembling the antibiotic-resistant patterns of organisms isolated in infections appearing in hospitalized patients The interval of less than 60 days from hospitalization to infection is within what may be termed the latent period of micrococcic infection Investigations of neonatal micrococcic infections in Seattle and elsewhere, utilizing bacteriophage typing, have produced evidence that micrococcic infections acquired in hospitals may remain latent for several months before producing clinical disease[13] It is probable that most of the 32 infections appearing within 60 days of hospital discharge were acquired as a consequence of hospital admission

Comment

The results of this study appear to indicate that, at the present time, micrococcic infections acquired outside the hospital do not merit great concern An average of 16 such infections, proved by culture, appeared per month, with one death every two months In contrast, if we include infections appearing within 60 days of discharge, infections evidently resulting from hospitalization in this 350-bed hospital averaged 38 cases per month (4% of the monthly average of 994 hospital admissions and births), with 6 deaths each month related to such infections If this rate were maintained for a year, there would be a total of 450 cases and 76 deaths This is nearly equal to the annual incidence of poliomyelitis in the entire state of Washington in the years prior to 1956 (with deaths from poliomyelitis much fewer) Presuming that micrococcic infections are acquired in other hospitals in the state also, it is clear that these infections may be the most serious communicable disease problem in this state—and probably in other states as well

The tabulation of infections in this study presumably underestimates the actual incidence of micrococcic disease in this hospital However, since this is a county hospital caring chiefly for indigent patients, it is probable that a far higher proportion of patients are elderly and debilitated than in most private hospitals Also, crowding of patients tends to be greater in public than in private hospitals Debilitation and crowding predispose to micrococcic infections Thus it would be anticipated that the incidence of micrococcic infection in most private hospitals would not be comparable to the incidence encountered during this investigation

A cause of concern nearly equal to the total incidence of hospital-acquired infections has been the apparently increasing resistance of such infections to antibiotic therapy and the problems of clinical management which have ensued Until the latter part of 1955, infections caused by organisms sensitive only to bacitracin were virtually unknown in this hospital Yet in our series of patients whose infections appeared within the hospital or after discharge, over 20% of the organisms cultured were resistant to all of the currently used antibiotics except bacitracin In this group of 28 patients, 12 deaths occurred, all related to infection (table 2)

In addition to complicating the task of treating micrococcic infection, the appearance of highly resistant organisms decreases the possible value of prophylactic chemotherapy in the postoperative management of surgical patients Not only is such chemotherapy likely to selectively permit growth of the more resistant bacteria, but there would currently seem to be less chance for prophylactic therapy to succeed if penicillin, streptomycin, or a tetracycline is used Reemphasis on strict aseptic technique, including preoperative and postoperative patient care, appears indicated

This study permits certain generalizations concerning the types of patients most vulnerable to micrococcic infection and thus points out areas in which greatest care is needed Clearly, any break in the skin, surgical or traumatic, including that made by intravenous catheters, appears to open the way for micrococcic invasion Debilitated patients, especially those in coma, are evidently unusually susceptible to pneumonia and skin infection Newborn infants appear to have very little resistance to micrococcic infection, and invasion may take place through normal, intact skin These considerations should not suggest more prophylactic therapy for susceptible persons but rather greater attention in preventing cross-infection by keeping the patient's environment as free as possible from pathogenic organisms and by careful observation for signs of clinical infection

This general approach to preventing micrococcic infections may be elaborated in terms of certain specific measures Micrococcic infections are probably contagious, and consequently patients with such infections should be isolated whenever possible for the protection of both patients and personnel [14] Contaminated bedding, from which large numbers of micrococci may be disseminated into the air, could serve as an important cause of nasal carriers among personnel,[1a] of micrococcic pneumonia, of skin infections, and of infections of poorly healing wounds Thus, it would appear that mattresses should be effectively covered and the covers cleaned between change of patients and that blankets should be laundered frequently and preferably sterilized with each laundering These and other preventive measures have recently been reviewed in greater detail by Starkey [15] and Howe [3a]

Such measures to control infections have a sound basis in our current knowledge of micrococcic epidemiology Their application should be encouraged by the realization that hospital-acquired infections seem largely preventable This realization should also provide stimulus to further investigation of the complex epidemiology of such infections and thus to more effective control

Summary

The cases of 189 patients with micrococcic (staphylococcic) infections, occurring during a period of three and one-half months, were investigated In 100 cases the infections appeared during hospitalization, and in 32 they appeared within 60 days of discharge from the hospital The remainder were acquired before hospital admission The infections investigated included 37 infections of surgical wounds and 14 of micrococcic pneumonias Twelve of the patients had micrococcic bacteremia, six of them died

In the entire group of 189 patients, 24 deaths occurred, with micrococcic infections a contributing factor in each case Twenty-one of the deaths were in the group of patients whose infections appeared during hospitalization In 28 of the 132 infections (21%) which were probably acquired as a result of hospitalization, the causative organisms were sensitive only to bacitracin Studies with bacteriophage typing indicated that a variety of strains of micrococci were isolated from infections except in puerperal and neonatal infections, in which a single bacteriophage type, 52/42B/44A, appeared to be responsible for most infections

Most of the micrococcic infections which appeared during hospitalization or shortly after discharge were the result of cross-infection within the hospital Such infections are theoretically preventable, and the following of preventive measures is urged

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ISONIAZID AS A CAUSE OF OPTIC NEURITIS AND ATROPHY

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• The most frequent toxic symptoms and signs following isoniazid therapy are secondary to involvement of the nervous system In addition to these usual toxic manifestations, two cases of bilateral optic atrophy occurred after the use of isoniazid In one of these cases discontinuance of use of the drug brought reversal of the process Two other similar cases have been reported Isoniazid optic neuritis and/or atrophy does not seem an example of drug idiosyncrasy, but rather part of the commonly found toxic neuritis associated with use of this drug All patients receiving isoniazid should be given pyridoxine An ophthalmological examination should be conducted whenever visual complaints are voiced

The incidence and types of toxic effects following isoniazid therapy have been difficult to define accurately because of the nature of the complaints as well as the varied approaches by different observers The most frequent toxic symptoms and signs are secondary to involvement of the nervous system These include dryness of the mouth, transient diplopia, heartburn, flatulence, delayed micturition, vertigo, dizziness, paresthesias, numbness, muscle twitching, hyperreflexia, headaches, burning feet, and mood disturbances[1] It appears that malnourished individuals, chronic alcoholics, and persons with preexisting cerebral damage (as in epilepsy), are particularly prone to the neurotoxic effects of isoniazid[2]

Optic disturbances secondary to isoniazid therapy have not been frequently recorded Janssen and Boke[3] observed an increase in optic lesions in patients with tuberculous meningitis who were treated by the intrathecal administration of isoniazid with streptomycin as compared with those treated by the intrathecal administration of streptomycin alone Sutton and Beattie,[4] in 1955, reported one case of bilateral optic atrophy following the use of isoniazid, and, later that year, Keeping and Searle[5] reported an instance of bilateral optic neuritis following the use of isoniazid We have observed two cases of bilateral optic atrophy, in one, discontinuation of isoniazid therapy brought reversal of the process Since it is not generally known that such lesions result from use of isoniazid, it is felt that presentation of these cases, along with a review of some aspects of isoniazid toxicity, is warranted

Report of Cases

CASE 1 —A 50-year-old woman was admitted to the hospital in March, 1955, for further treatment of pulmonary tuberculosis Her illness dated to 1935, when she first became ill with tuberculosis involving the left lung At that time crushing of the left phrenic nerve was done, and after two years of bed rest the patient was discharged The tuberculosis reactivated in 1948, and the patient was treated with streptomycin for two months and with therapeutic pneumothorax of the right lung for four years In September, 1952, she received 300 mg or 5 mg per kilogram of body weight, of isoniazid daily for one month In July, 1953, isoniazid therapy was restarted, using the same dosage, and was continued until the patient was admitted to this hospital The patient had a strong family history of tuberculosis She did not drink alcoholic beverages and had smoked 10 to 15 cigarettes daily for many years

Physical examination revealed a well-developed woman who appeared chronically ill The blood pressure was 96/60 mm Hg, pulse 82 per minute, and temperature 99 F (37 2 C) The right hemithorax was smaller than the left There were diminished breath sounds over the right side of the chest, and coarse rales were heard over the apex of the right lung The heart, though shifted to the right, was normal There was slight tenderness of the left calf muscle The remainder of the physical examination was normal The hemoglobin level, hematocrit reading, leukocyte and differential counts, urinalysis, and blood serology were normal or negative The sedimentation rate was 22 mm per hour A chest roentgenogram showed a small vertical heart displaced to the right There was marked pleural thickening in the right hemithorax and moderate fibrous calcification of the apex of the left lung Emphysematous changes were present throughout both lung fields

When the patient was admitted to the National Jewish Hospital at Denver, in March, 1955, the isoniazid dosage was increased to 900 mg, or 16 mg per kilogram, daily, and she also received 100 mg of pyridoxine and 100 mg of thiamine daily Six weeks later, she complained of dizziness as well as numbness and tingling in her lower extremities The isoniazid dosage was reduced to 450 mg, or 8 mg per kilogram, daily One week later, the patient experienced tingling and numbness in her hands and complained of diminution of vision Isoniazid therapy was discontinued at this time

Examination by an ophthalmologist revealed a visual acuity of 14/200 in both eyes The ocular tension was 16 9 mm Hg in both eyes The right optic disk was redder than normal on the nasal side and showed some pallor on the temporal side There was a circular ring of pigment about the disk The remainder of the fundus appeared normal The left disk was similar, though the changes were not as marked, and the zone of pigmentation was not observed There was a normal response with the 3-mm white target A concentric constriction of the visual fields more marked on the right, was present with the 1 mm white target The findings were consistent with the diagnosis of optic neuritis associated with early atrophy Three weeks later, there was an increase in the concentric constriction of both visual fields, again more marked on the right No special treatment was given There was a steady and gradual improvement in vision as well as lessening of the paresthesias On reexamination of the patient six months later, the ophthalmological findings were completely normal

This 50-year-old woman developed bilateral optic neuritis and early optic atrophy associated with peripheral neuritis within two months after her daily dosage of isoniazid was increased from 5 to 16 mg per kilogram After discontinuation of isoniazid therapy, her symptoms improved gradually, and within six months she had recovered fully A microbiological assay for serum isoniazid, performed six hours after a test dose of 4 mg of isoniazid per kilogram

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showed 1 6 mcg per cubic centimeter This is considered to be a high level of biologically active isoniazid,[6] indicating that the patient did not inactivate this drug rapidly

Case 2—A 64-year old man was admitted to the Veterans Administration Center Wadsworth, Kans, on Oct 18, 1954 He had a history of generalized weakness and weight loss of 30 lb (14 kg), extending over several months He was disoriented, and an accurate history could not be obtained, though it was known that he was a chronic alcoholic His previous illnesses had included bronchitis, meningitis, smallpox, pertussis and influenza Physical examination revealed a malnourished, chronically and acutely ill patient The complete physical examination revealed no other significant abnormalities except loss of vibratory sensation in the lower extremities The initial chest roentgenogram revealed a cavity with surrounding infiltration in the upper part of the left lung The leukocyte count was 13 800 per cubic millimeter with a differential count of 86% neutrophils 13% lymphocytes, and 1% monocytes The sedimentation rate was 26 mm per hour The hemoglobin level, hematocrit reading blood glucose level, carbon-dioxide content and nonprotein nitrogen serum potassium and calcium levels were normal a serologic test for syphilis was negative The serum sodium level was 130, and the serum chloride level was 92 mEq per liter The serum inorganic phosphorus level was 1 8 mg the total serum protein level 4 9 Gm, and the serum albumin level 3 1 Gm per 100 cc The total serum cholesterol level was 90 mg with cholesterol esters 33 mg per 100 cc The spinal fluid pressure and dynamics were normal The cell count and glucose chloride and protein content of the spinal fluid were normal The colloidal gold reaction and serology were negative A skin test with intermediate-strength purified protein derivative was positive, skin tests for histoplasmosis, coccidioidomycosis, and blastomycosis were negative Repeated examinations of the sputum were negative for acid fast bacilli

A tentative diagnosis of tuberculosis was made, and treatment with isoniazid in a daily dosage of 400 mg or 9 mg per kilogram was started Thirty days after the start of isoniazid therapy the patient complained of severe retro orbital pain on the left On the following day, he was aware of visual loss in the left eye that progressed rapidly to complete blindness Within four days, similar involvement of the right eye occurred The use of isoniazid was discontinued and the patient was treated with vasodilators His condition deteriorated rapidly, two months after admission to the hospital he developed bronchopneumonia and he died on Dec 17, 1954

Examination by an ophthalmologist, after the onset of visual difficulties had revealed complete loss of vision as well as an absence of direct and consensual light reflex in the left eye There was diffuse retinal blurring, but no hemorrhages or exudate were present One day later, a 1-to 2-D papilledema was observed in the left eye There were no extraocular muscle disturbances Four days after onset of visual difficulties, the right pupil became fixed and the borders of the disk were poorly defined The diagnosis of an acute fulminating optic neuritis was made Skull roentgenograms, bilateral carotid arteriograms and a pneumoencephalogram were normal An electroencephalogram showed definite abnormalities which were not characteristic of any specific lesion but which were consistent with generalized organic disturbance Prior to the patient s death, ophthalmological changes consistent with a bilateral optic atrophy were observed

Postmortem Examination—At autopsy it was found that the apex of the left lung was firmly bound to the chest wall and the right pleural cavity was obliterated by fibrous adhesions The apex of the left lung contained a single thin-walled cyst measuring 9 5 cm in its greatest diameter The brain weighed 1,725 Gm The convolutions and sulci were not flattened The cerebral hemispheres were symmetrical The brain was firm in consistency, and coronal sections failed to demonstrate any dilatation of the ventricular systems The lining of the anterior horn of the left ventricle was somewhat flattened, and numerous petechial hemorrhages were observed Sections of the cerebral hemispheres showed prominent vascular markings The brain stem was not remarkable

Microscopic examination of sections from the cavity in the upper lobe of the left lung showed that it was lined, in part by respiratory epithelium In other zones, the lining was ragged and neutrophils and fibrin were present The wall of the cavity consisted of cellular fibrous tissue moderately infiltrated by lymphocytes and plasma cells A few multinucleated giant cells were found Sections of the anterior horn of the left lateral ventricle of the brain showed that it was lined by an ependyma containing granulations The ependymal lining was interrupted and had an irregular surface that showed numerous petechial hemorrhages The adjacent parenchyma showed increased vacuolation Sections through the optic nerve were not remarkable There was some piling of the arachnoid cells and a moderate focal fibrous thickening of the meninges was present The anterior lobe of the pituitary gland was not remarkable but sections of the posterior lobe were pigmented

The final diagnoses were blindness toxic in origin broncho pneumonia and cyst of the left lung congenital in origin

This 65-year old male chronic alcoholic was admitted to the hospital in a state of advanced malnutrition Because of the possibility of tuberculosis, he was treated with isoniazid After 30 days of therapy, he developed optic neuritis in the left eye and then in the right eye This progressed rapidly to optic atrophy and complete blindness The patient s condition deteriorated rapidly, and he died within two months after hospitalization Although the etiology of the optic changes was not specifically known, it was felt that the disturbances were precipitated by the isoniazid therapy

Comment

Sutton and Beattie,[4] in 1955, were the first to report the occurrence of optic atrophy after the administration of isoniazid Their patient complained of loss of vision 10 days after receiving 200 mg of isoniazid and 15 Gm of aminosalicylic acid daily Little attention was paid to these symptoms because visual disturbances resulting from isoniazid therapy had not been reported previously, and the medication was continued for six weeks The visual difficulties persisted and progressed to bilateral optic atrophy The authors speculated that the optic atrophy was related to a drug idiosyncrasy secondary to isoniazid Aminosalicylic acid was not implicated because the patient had received this drug previously without ill-effects Keeping and Searle,[5] in the same year, reported the onset of optic neuritis, secondary to isoniazid Their patient complained of visual loss 25 days after first receiving 1 Gm of streptomycin and 200 mg of isoniazid daily Six weeks later, a diagnosis of bilateral optic neuritis was made and the medication was discontinued After this, there was a rapid return of the patient s vision to normal These authors again stressed the rarity of an optic neuritis following isoniazid therapy and suggested that a drug idiosyncrasy was the precipitating cause

Our report of two cases of optic disturbance during the administration of isoniazid brings the total of such cases to four The onset of visual difficulties occurred within one month after initiating therapy in three cases, and within two months after a marked increase in the dosage in the fourth case There were no other known causes for the optic involvement in three of the four patients In one of our cases, the patient was a markedly malnourished alcoholic, and it may be fair to question the role of isoniazid in his optic changes

With so few cases reported, it is possible that the visual lesions occurred by chance in these patients receiving isoniazid This seems unlikely when one considers not only the known neurotoxicity of isoniazid but the fact that the patient of Keeping and Searle, as well as one of ours, improved remarkably after isoniazid therapy was discontinued In addition, and of importance, there was the association of peripheral neuritis and optic neuritis in one of our patients These lesions occurred at the same time, and both gradually improved when isoniazid therapy was stopped

Mechanism of Neurotoxicity—It is our impression that isoniazid optic neuritis and/or atrophy due to isoniazid is not an example of drug idiosyncrasy, as suggested by others, but that it is part of the toxic neuritis commonly found with use of this drug The reason for the rarity of this condition when compared to the incidence of peripheral neuritis in patients receiving isoniazid is unexplained Since studies have been conducted on the causes and prevention of peripheral neuropathy following isoniazid therapy, a discussion of these findings may be useful in defining the relationship between isoniazid therapy and optic disturbances Because similar symptoms occur with states of nicotinic acid deficiency as with isoniazid intoxication, it was suspected that the peripheral neuritis related to isoniazid therapy resulted from a competitive inhibition of nicotinic acid Vilter and co-workers[7] felt that this was unlikely, since they found normal urinary values for nicotinic acid and its derivatives in patients showing severe toxic effects from isoniazid Biehl and Vilter[8] found that isoniazid therapy caused a marked urinary loss of pyridoxine, which reverted to normal when isoniazid therapy was stopped Pyridoxine-deficiency states in man, produced by pyridoxine-deficient diets or by use of metabolic antagonists, may produce peripheral neuritis[9] Symptoms of these types of induced pyridoxine deficiency include glossitis and dermatitis which are not unlike those conditions produced by isoniazid in some patients Degenerative changes of the peripheral nerves, thoracic root ganglion cells, and posterior columns of the spinal cord have been described in pigs deficient in pyridoxine[10]

Biehl and Nimitz[11] reported that pyridoxine, in dosages of 50 to 450 mg daily, prevented the appearance of peripheral neuritis secondary to high dosages of isoniazid Carlson and co-workers[12] reported that the administration of pyridoxine with isoniazid decreased the incidence of peripheral neuritis and permitted the administration of high dosages of isoniazid for longer periods of time The experimental and clinical evidence suggests that isoniazid alters the metabolism of pyridoxine and thus could produce both the peripheral and optic changes

The degree to which isoniazid is altered by metabolic processes may have some relationship to the neurotoxicity of the drug That portion of the drug which escapes inactivation, the biologically active moiety, appears to be responsible for the toxic effects of isoniazid Our experience in other studies[13] suggests that the severe toxic reactions have occurred in those patients who, as a result of the retarded isoniazid inactivation, maintain a higher serum level of the biologically active moiety Although the amount of biologically active isoniazid present on the same drug dosage varies markedly from person to person, it remains relatively constant for a given individual[14] We have observed that the level of biologically active isoniazid is increased in most patients by the simultaneous administration of aminosalicylic acid, which probably acts by competing with isoniazid for acetylation[15] The amount of biologically active isoniazid present is also increased by increasing the dosage of isoniazid Biehl and Nimitz[11] observed that 44% of the patients who received 16 to 24 mg of isoniazid daily per kilogram developed peripheral neuritis This occurred in 20% of the patients receiving 11 to 15 mg per kilogram daily and in only 8% of those receiving 6 to 10 mg per kilogram daily

As indicated by the above, the patients who are most likely to develop neurotoxic effects from isoniazid are those who (1) inactivate isoniazid slowly or receive high dosages, (2) receive both aminosalicylic acid and isoniazid, and (3) have not been given pyridoxine

Two of the four patients who developed optic neuritis or atrophy were receiving high dosages of isoniazid, and one of them was known to inactivate isoniazid slowly A third patient was receiving aminosalicylic acid in addition to isoniazid Only one of the four received pyridoxine

Since serious visual disturbances may follow the use of isoniazid, it is imperative that ophthalmological examinations be conducted whenever visual complaints are voiced This is important in view of the fact that the optic lesions are likely to be reversible if isoniazid therapy is discontinued promptly All patients receiving isoniazid should be given pyridoxine in a dosage of 25 to 100 mg daily to reduce the incidence of neurotoxic effects from isoniazid

Summary

In two cases, optic neuritis and, eventually, atrophy occurred after the use of isoniazid Serious optic disturbances attributable to isoniazid have been reported in a total of four cases, including these two It is assumed that the optic lesions are part of the neurotoxic effects of isoniazid and, though rare, do not represent an unusual form of drug idiosyncrasy The cause and treatment of peripheral neuritis due to isoniazid have a bearing on the problem of optic neuritis due to isoniazid The physician should be aware that serious visual lesions may follow the use of isoniazid If all patients receiving isoniazid are given pyridoxine daily, the incidence of neurotoxic effects will be reduced

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PERFORMANCE OF CESAREAN SECTION WITH AID OF GENERAL ANESTHESIA

ANALYSIS OF ONE THOUSAND ELEVEN OPERATIONS SINCE 1948

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• *Experience with the cyclopropane curare type of general anesthesia in 1,011 cesarean sections has been analyzed and compared with published reports on the use of other types of anesthesia for this operation All patients in this series received scopolamine with or without additional premedication, and after the induction of anesthesia with cyclopropane an injection of 6 to 12 mg of tubocurarine chloride was given intravenously The one maternal death in this series occurred two weeks after the operation and was not related to the anesthesia The associated gross infant mortality rate was 5 4%, of which 2 9% were stillbirths and 2 5% were neonatal deaths, but when this figure was corrected for prematurity, congenital anomalies, and other factors clearly unrelated to the anesthesia, the net rate was 4 7%, with 2 4% for stillbirths and 2 3% for neonatal deaths These findings conflict with claims that have been made for the superiority of other methods of anesthesia The good results here reported are ascribed in part to the care and observation given to the individual patient before the operation as well as to the attention given in the recovery room It is therefore recommended that trained anesthesiologists be kept available for obstetric patients throughout the 24 hour day*

There is no one method of anesthesia for cesarean section that is superior to all other methods Recent literature[1] has indicated that better results are to be obtained with regional anesthesia than with general anesthesia in cesarean sections In order to evaluate the validity of such statements, it was decided to review the cesarean sections done by us since 1948, 99% of which were performed with the patient under general anesthesia with cyclopropane and curare

This study is a report of 1,011 cases of cesarean section performed with the patient under general anesthesia The period covered is from Jan 1, 1948, through April 30, 1956, and includes a large number of sections performed within the modern era of surgery and anesthesia

The cesarean sections in this study were performed within the North Side Unit of the Youngstown Hospital, Youngstown, Ohio, which comprises one of the two maternity services located in the city The hospital is essentially a private hospital, with service cases representing less than 5% of the total number of deliveries Delivery privileges are extended to general practitioners, who conduct approximately half of the annual deliveries However, the cesarean sections are performed exclusively by physicians who are diplomates of the American Board of Obstetrics and Gynecology or who are qualified for certification by that board

Anesthesia for all cesarean sections is conducted by or under the direct supervision of a physician who has had full residency training in anesthesiology and is a member of or in the process of fulfilling requirements for certification by the American Board of Anesthesiologists

Method

The anesthetic technique used is the cyclopropane-curare method introduced for cesarean sections in 1947 by Whitacre and Fisher[2] All patients are seen

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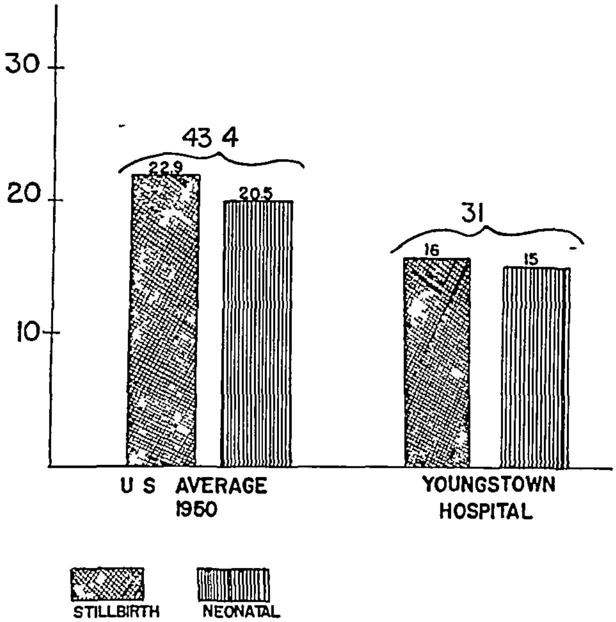
From the Department of Anesthesia, Youngstown Hospital Association preoperatively by an anesthesiologist for a general preoperative evaluation and also for indoctrination of the patient as to the method used The sequence of events to be followed in the operating room is outlined to the patient, since, with the technique used, anesthesia is not induced until immediately before the incision is to be made At this time orders are written for the typing and cross-matching of blood for the patient All patients have blood ready for them preoperatively Blood is administered preoperatively as indicated Food and orally given fluids are withheld before elective section, as with any major surgery, and also at the onset of labor in all obstetric patients



Graph showing perinatal mortality per 1 000 live births in Youngstown Hospital as compared with average in United States in 1950 Data on United States average from Potter[3]

Preoperative Medication—From 1948 to 1954 the patients received only a belladonna derivative for preoperative medication Since 1954 we have been giving our patients two hours preoperatively a barbiturate (100 mg), levorphanol (Levo-Dromoran) tartrate (1 mg), and scopolamine (0 4 mg)

Anesthesia in the Operating Room—After the patient is draped and the surgical staff is completely gowned, anesthesia is induced with cyclopropane After induction is complete, 6-12 mg of tubocurarine chloride is administered intravenously The incision is made approximately one minute after the curare compound is administered There is frequently a minimal flexor response in the patient as the incision is made, but we have not had any patients recall a painful experience postoperatively The flexor response is desirable and indicates a proper level of anesthesia Respirations are assisted as indicated After the delivery of the baby, which is usually six to nine minutes after the onset of anesthesia, the level of anesthesia is deepened and maintained, as for any other surgical procedure

Postoperative Care—All infants receive nasal and pharyngeal suctioning with a soft rubber catheter immediately after delivery Infants with any degree of respiratory embarrassment are immediately seen and treated by an anesthesiologist All patients are taken to the recovery room postoperatively and are observed there until their conditions are completely stabilized and they are awake

Results

During the period covered in this study, there were 32,238 deliveries, of which 1,011 were cesarean sections conducted with the patient under cyclopropane curare anesthesia

The figure presents data on the over-all fetal mortality on our obstetric service as compared with reports in the recent literature[3] There were 507 stillbirths and 462 neonatal deaths in this series, giving a gross, uncorrected fetal loss of 3% For this period, there were 16 stillbirths and 15 neonatal deaths per 1,000 live births

There were 10 maternal deaths on our obstetric service during this period, giving a maternal mortality rate of 1 per 3,100 live births In 1950 in the United States the average maternal mortality rate was 1 5 per 1,000 live births Thus, the maternal mortality rates per 10,000 live births in all of the United States and on our obstetric service were 15 and 3 3 respectively In the series of cesarean sections, there were no maternal deaths associated with anesthesia There was one maternal death in this series, which occurred two weeks after cesarean section and was secondary to intestinal perforation and peritonitis

Associated with cesarean section, there was a gross infant mortality rate of 5 4%, of which 2 9% were stillbirths and 2 5% were neonatal deaths The criteria for correction for fetal and neonatal mortality are (1) congenital anomalies judged to be incompatible with survival, (2) fetus of less than 1,000 Gm (2 2 lb), (3) estimated gestation of less than 28 weeks, (4) evidence suggestive of intrauterine death before section, and (5) evidence at section of intrauterine death before section, such as macerated fetus If these criteria are used rigidly, the corrected infant mortality rate is 4 7%, of which 2 4% were stillbirths and 2 3% were neonatal deaths

Indications for Cesarean Section and Total Associated Perinatal Deaths, with Percentages of Stillbirths Versus Neonatal Deaths

	No of Cases	Stillbirths %	Neonatal Deaths %
Abruptio placentae	15	87	13
Placenta praevia	11	28	72
Previous section	6	50	50
Cephalopelvic disproportion	3		100
Toxemia	5	20	80
Miscellaneous maternal distress	5	60	40
Miscellaneous fetal distress	1	100	
Erythroblastosis fetalis	1		100
Uterine inertia and dystocia	4	75	25
Prolonged labor	1		100
Abnormal presentation	1	100	
Prolapsed cord	2	100	

The table lists the perinatal deaths associated with various indications for cesarean section and compares the incidence of stillbirth versus neonatal death, in order to determine the relationship of indication for cesarean section with the chance of a stillbirth or neonatal death It can be noted quite readily that abruptio placentae, as expected, is associated with a markedly high incidence of stillbirths

Comment

A review of the literature will demonstrate that various methods of anesthesia have been used in cesarean sections, such as regional,[4] general,[5] and intravenous[6] The results obtained by the different methods are quite variable, but it can be noted that good results are possible by the use of all methods by trained anesthesiologists This study was undertaken to review the results of a large series of cesarean sections done by one method of anesthesia (cyclopropane and curare)

As indicated by the results noted above, the use of cyclopropane and curare has been a highly successful method of anesthesia for cesarean section in our hands There were no maternal deaths attributed to anesthesia in this large series, and, from all causes, there was only one maternal death, giving results comparable to those reported by Lull and Ullery,[4d] who used spinal anesthesia The claim by the proponents of conduction anesthesia that general anesthesia will produce an increase of perinatal and maternal mortality is not borne out by this study The maternal mortality rates for cesarean section in the recent literature range from 0 08% to 5 82%[7] The perinatal mortality rates associated with this operation range from 2 96% to 22%[8]

The problem of aspiration of vomitus is an ever-present one for the anesthesiologist regardless of the method of anesthesia We feel it is not a problem to be feared but one to be respected Aspiration of vomitus has not been a problem in our series The light level of anesthesia, close observation of the patient, and prompt and adequate therapy, we feel, have prevented the occasional patient who vomits from getting aspiration pneumonia

It is well to note that the ultimate statistics that are derived in the study of any anesthetic method are markedly affected by the type of patient that is presented to the anesthesiologist for anesthesia Close observation, good therapy, and adequate consultation service on the part of the obstetric department present more patients in optimal condition for anesthesia and, thereby, produce much better results If there is a weak link in the obstetric care of the patient, then the condition of the candidate for anesthesia will be much worse and the results will be poor even though the anesthesia be of equal quality

A word about the literature on cesarean section studies is warranted because of the abundance of small series with large conclusions in the literature The practice of deriving results from a small series is dangerous, as the standards of comparison are in the realms of a few per cent to fractions of a per cent It is obvious that one or two bad results can change the statistics discussed markedly, and, in order to arrive at valid conclusions, a large series of cases treated by a single method must be reported There is no doubt that, in order to obtain good results by any method of anesthesia, 24-hour hospital coverage by trained anesthesiologists is required The practice of inducing good anesthesia in the patient who is undergoing cesarean section between 8 a m and 5 p m and then allowing the emergency patient to be handled by emergency personnel can only tend to produce poor results Regardless of the method of anesthesia used, there must be close liaison between the obstetrician and the anesthesiologist Since anesthesia for cesarean section is concerned with two lives, there are times when the operator must change his technique to fit the anesthetic method of choice or the anesthesiologist must change his method to fit the operative technique of choice Any one method cannot fit all cases or operations, but by mutual consultation and education between the obstetrician and anesthesiologist a combination can be obtained that is best for the individual patient

Summary

A review of anesthesia with cyclopropane and curare, administered by or under the direct supervision of trained anesthesiologists, in 1,011 cesarean sections performed in the Youngstown Hospital since 1948 indicates that in trained hands one method of anesthesia is not superior to all other methods of anesthesia No maternal mortality associated with anesthesia occurred in this series There was one maternal death secondary to intestinal perforation and peritonitis The corrected perinatal mortality rate was 4 7% Abruptio placentae is associated with the greatest incidence of stillbirths

Good results for anesthesia are directly proportional to the care and observation the patient receives prior to the operation, and significant reduction in mortality and morbidity demands precise attention during operation and a well-run recovery room

Twenty-four-hour coverage by trained anesthesiologists is mandatory for good results

North Side Unit, Youngstown Hospital Association (4) (Dr Allen)

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INTRAMEDULLARY FIXATION OF METACARPAL FRACTURES

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• *The treatment of fractures by inserting longitudinal intramedullary wires for fixation has been applied in 30 patients with metacarpal fractures Local anesthesia was obtained for fractures of the fifth metacarpal (80% of this series) by blocking the ulnar nerve, which is easily accessible at the elbow Reduction is accomplished with direct pressure over the fracture toward the palm of the hand and counter pressure dorsally on the flexed proximal phalynx The wire or pin is gently drilled longitudinally through the soft surface of the head and should run the full length of the bone so as to engage the proximal end and produce adequate fixation In most cases bony union has been solid enough in three weeks to remove the wire The patients have been able to return to work at once, and no infections or refractures have occurred*

In the ever-advancing field of orthopedic surgery, intramedullary fixation is gaining in popularity This principle has been used in almost every part of the body to maintain fracture fixation and yet allow a more normal physiology of the part to exist The freeing of joints from plaster fixation and the reduction of economic loss to the patient have been most appealing These same advantages may also be applied to fractures of the metacarpals in a simple but effective manner

Metacarpal fractures rank second among the most common fractures of the hand and fingers In a large military installation, such as the Keesler Air Force Base, Mississippi, from whence most of this series was compiled, metacarpal fractures resulting from fisticuffs and from direct trauma to the hand are frequently encountered

Locations of Metacarpal Fractures

Location	No	Percentage
Fifth metacarpal		
Neck	19	63 } 80
Shaft	5	17 } 80
Fourth metacarpal		
Shaft	3	10
Second metacarpal		
Shaft	3	10

It has been shown by Sutro,[1] Norman,[2] and Berkman[3] that the above advantages of intramedullary nailing apply to the metacarpals They advocate transverse metacarpal wiring to fix the fragments Aside from the technical difficulty of transverse wiring, this method has been found to affect the efficiency of the intrinsic muscle mechanism

Closed reduction and plaster fixation has been recommended by Bunnell[4] This procedure, except in the most skilled of hands, frequently results in finger-and-hand stiffness, malunion, necrotic skin areas, and great economic loss

A more physiological method, that is, longitudinal intramedullary wire fixation, seems to serve this purpose best It offers good stability, simplicity of insertion and removal of pins, and no physiological impairment of muscle mechanism of the hand The series treated was composed of 30 patients with fractures of the metacarpals, 80% being of the fifth metacarpal, 10% of the second metacarpal, and 10% of the fourth metacarpal

Anesthetization

Ulnar nerve block at the elbow was used on 24 fractures of the fifth metacarpal This has proved to be a valuable adjunct to the success of this simple procedure It facilitates success for several reasons

1 There is no need for the administration of a local anesthetic at the fracture site, which, if used, would obliterate the bony landmarks necessary for pin insertion

2 This method of blocking allows the procedure to be done anywhere that sterile conditions can be obtained

3 It is easy to find the ulnar nerve for nerve block, since it lies subcutaneously between two bony landmarks In most instances the nerve can be palpated with the index finger (fig 1)

When 10 cc of a 1% solution of lidocaine (Xylocaine) hydrochloride is used, a definite numbness can be obtained This will allow ample time for pin insertion and for the taking of x-rays if they are needed It is important that approximately 20 to 30 minutes elapse between the injection of lidocaine and the reduction of the fracture of the fifth metacarpal This time may be spent in preparing the hand for surgery

The median and radial nerves may be blocked just above the wrist in the case of fractures involving the other four metacarpals

Pin Insertion

After successful anesthetization, the fracture is reduced, with the metacarpophalangeal joint flexed to 90 degrees and pressure applied in a dorsal direction upon the flexed finger Counterpressure is applied on the dorsum of the hand, the fracture site being pushed toward the palm These forces reduce the fracture (fig 2)

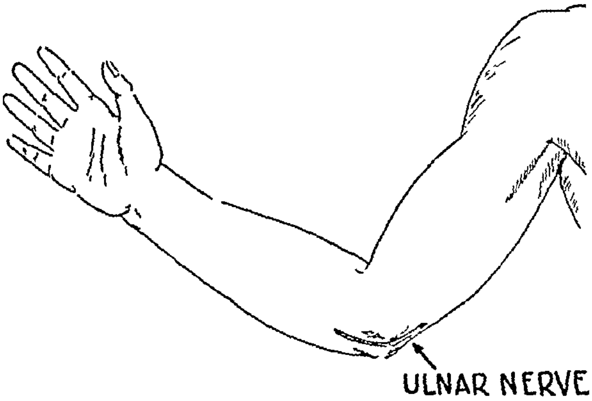

Fig 1—Ulnar nerve at elbow lies in a bony groove and is easily found for nerve block

The fracture is held in this position by an assistant A 0 062-gauge plain Kirschner wire is used The wire is introduced through the skin where it meets the distal articular surface of the head of the metacarpal (fig 3) The extensor tendon slides toward the radial side of the metacarpal head, when the metacarpophalangeal joint is flexed to 90 degrees, and so stays out of the way of the pin during this procedure The pin is gently drilled through the soft cartilaginous-bony surface of the head (fig 4) It should run the full length of the metacarpal and engage its base to produce adequate fixation Entry into the carpometacarpal joint seems to cause no ill effects

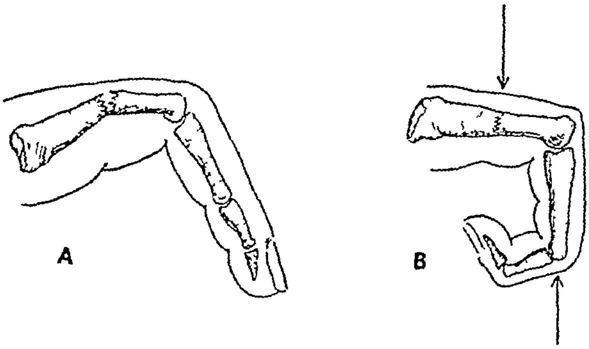

Fig 2—A, fracture of shaft of the metacarpal presents dorsal angulation of bone at fracture site, 'knuckle' is accordingly depressed B, two simple forces are needed to reduce fractures of either neck or shaft of the metacarpal They are (1) pressure toward palm over fracture site and (2) counterpressure in dorsal direction on flexed proximal interphalangeal joint

X-rays are then taken In the case of a neck fracture of the fifth metacarpal, there is so little danger of the pin leaving the intramedullary canal that it is not necessary to take x-rays in the operating room Shaft fractures are more difficult, and x-rays on the operating table should be made

After satisfactory insertion, the pin is cut at a level just beneath the skin This usually leaves about ¼ in of pin extending subcutaneously from the articular surface, which insures easy removal No plaster is needed, and the patient is allowed to return to duty immediately (figs 5 and 6)

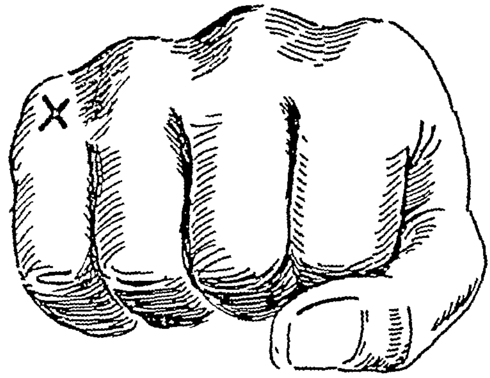

Fig 3—Most of head of metacarpal becomes subcutaneous with reduction of fracture Center of head is easily found and is point where pin should be introduced

Comment

Open fractures, which can be made clean in a few hours, can be pinned The bone, however, must be covered by skin Open fractures of the metacarpals are rare, and none has been encountered in this series Oblique, unstable fractures do not lend themselves well to this procedure and probably need traction for support

Observations

Several interesting side-lights on this procedure of intramedullary fixation have been found They are as follows

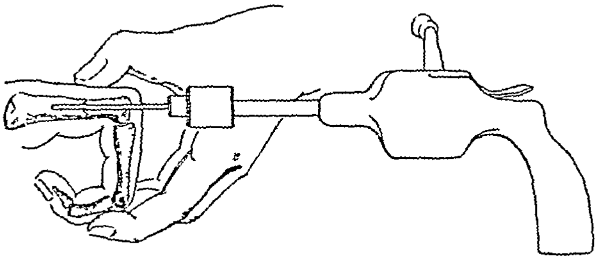

Fig 4—With forces necessary for reduction still being applied by an assistant, Kirschner wire is drilled into place

1 By burying the pin beneath the skin, no infection or weeping of any nature has been encountered Removal has been simple, because the pin was easily palpable subcutaneously It was removed with the patient under local anesthesia, in three to four weeks

2 Metacarpophalangeal joint motion has been limited while the pin was in place This was due to a mechanical block of the joint by the pin However, in all cases, motion returned to normal shortly after the pin was removed

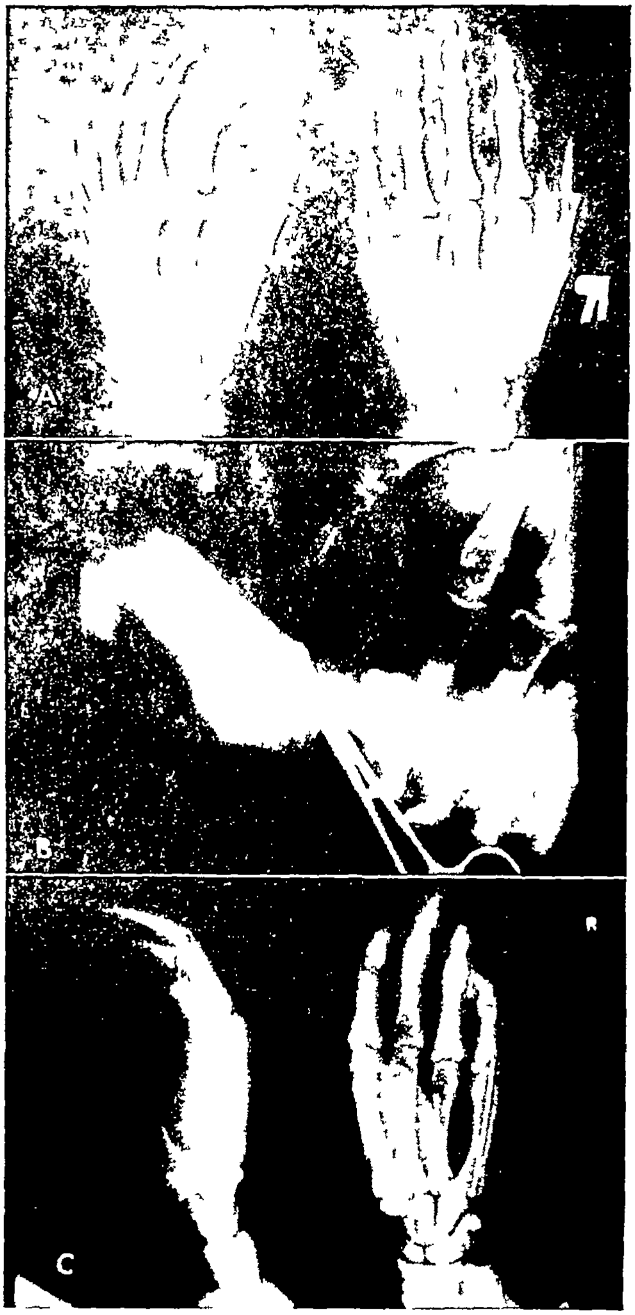

Fig 5—*A*, fracture of midshaft of fifth metacarpal *B*, x-ray taken in operating room Note pressure being applied to dorsal aspect of fracture to reduce it, counterpressure on flexed proximal interphalangeal joint is not shown, pin is introduced while this position is held *C*, reduced fracture with pin in place

3 In earlier cases of shaft fracture, no x-rays were made in the operating room In three procedures the pin missed the proximal fragment Nevertheless, stability was so good that no cast was applied Results were good and union occurred, with satisfactory alignment, in three to four weeks

4 Threaded wires were tried but were carded because of the difficulty of removal It was also felt that they did not increase the stability at the fracture site The unthreaded pins did not tend to migrate

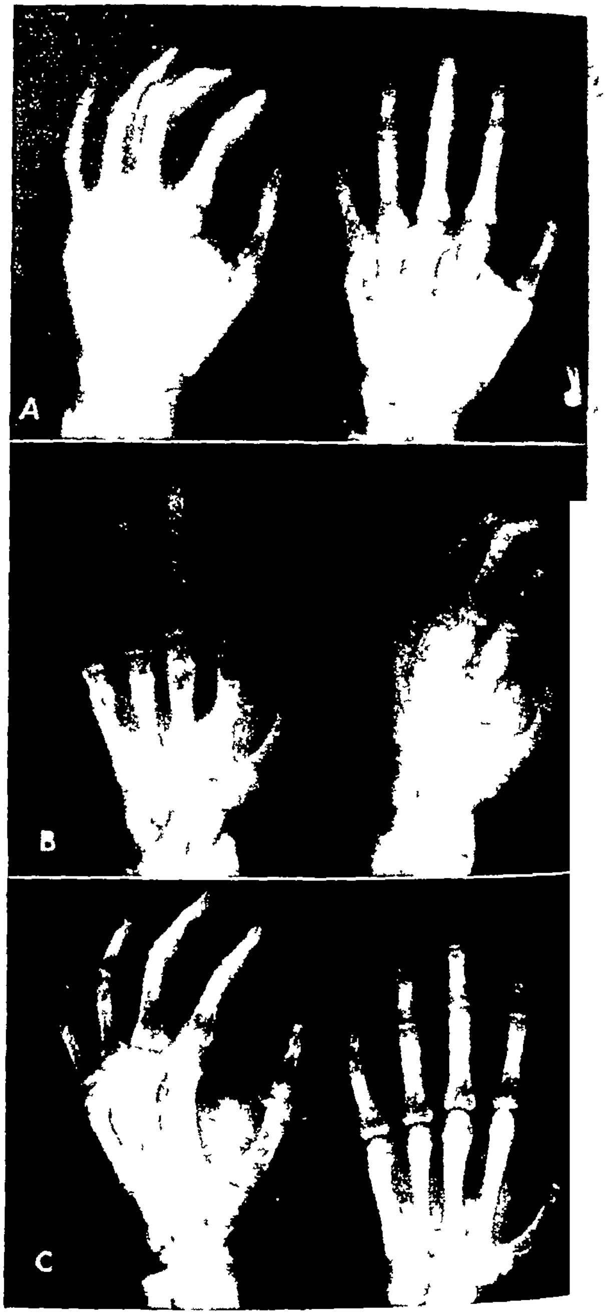

Fig 6—*A*, fracture of neck of fifth metacarpal (commo metacarpal fracture) *B*, reduction is anatomical and pin e gages carpometacarpal joint *C*, three weeks after fractur, p has been removed, fixation is excellent, and excessive callus h been avoided

5 Bony union has been solid enough in fresh frac tures in three weeks to remove the pins With fracture that occurred a week or more prior to pinning, the pin were left in place four weeks Solid unions have oc curred in both groups and no refractures have bee experienced

Summary

Thirty patients with metacarpal fractures have been treated by means of longitudinal intramedullary Kirschner wires with no external fixation Fixation has been good, union has been prompt, and no infection has been encountered As most of the fractures have been of the fifth metacarpal, it is felt that ulnar nerve block at the elbow has greatly simplified the procedure The fact that the patient is allowed to return to duty at once has pleased both the employer and the patient

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EVALUATION OF DIATRIZOATE (HYPAQUE) IN PERIPHERAL ANGIOGRAPHY AND AORTOGRAPHY

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• *There were no serious systemic effects after approximately 100 injections of diatrizoate salts for vascular opacification, administered to 83 patients Local reactions were infrequent and consisted of varying degrees of pain and vasospasm of very brief duration, although the vasospasm never led to ischemic symptoms, and there were no thromboses, even in the distal veins of the extremities No experimental studies have been performed to determine the possible effect on the spinal cord from large doses of diatrizoate, and it should not be assumed that massive doses of this product will not produce permanent paralysis when injected into the human aorta*

The roentgenographic delineation of arteries by injection of an opaque medium has been an established diagnostic procedure for many years–Recent developments in surgery of the blood vessels have greatly increased the importance and the use of angiography, with the result that many studies have been made to develop safer materials and improved techniques for their administration Generally, the substances which have been injected into the blood stream to opacify the vessels have been of two types About a decade ago a colloidal suspension of thorium dioxide (Thorotrast) was widely used in arteriography Because of the radioactivity of thorium and its indefinite retention in the body, it has been generally rejected for vascular opacification

More commonly today, the solutions of organic salts containing iodine are used Iodopyracet (Diodrast) and acetrizoate (Urokon) are the two preparations employed most frequently Iodopyracet has had extensive use in urography, and has been analyzed by Pendergrass and others [1] in mass surveys in 1942 and again in 1954 There were 57 deaths related to use of this material in almost 4,500,000 urographic examinations The majority of these deaths were apparently due to hypersensitivity to the drug, a condition which was not manifested by the usual sensitivity studies done prior to urographic examination Untoward reactions of a minor character, such as venous spasm, urticaria, angioneurotic edema, flushing, and pain, were quite common

With the increasing use of these substances in arteriography, various workers have noticed and reported serious reactions related to the mediums and technique of injection The neurosurgeons were among the first to note untoward reactions following cerebral angiography Perese and others [2] reported 37 complications with 35% iodopyracet in 234 carotid angiographic studies These consisted of 1 direct death, 6 deaths hastened by the examination, permanent hemiplegia in 3 cases, transient hemiplegia in 19 cases, sensory changes in 7 which were of transient nature, and 1 retinal artery occlusion Sutherland and others [3] employed a 25% solution of iodopyracet instead of the usual 35%, and, while obtaining satisfactory cerebral angiograms, noted only 2% complications instead of 16% with the higher concentration

The utilization of these substances in peripheral angiography and aortography has been associated with occasional serious reactions There have been reported several instances of both partial and permanent paraplegia and death following the use of acetrizoate in aortography [4] Other complications have been arterial thromboses of visceral vessels resulting in necrosis and death [5] and also cases of renal shutdown [6]

Recent experimental work has shed some light on the mechanism of these reactions Foltz, Thomas, and Ward [7] demonstrated a direct toxic action of iodopyracet on brain nerve cells of the monkey The same substance injected into the aortas of rabbits produced increased permeability of cord vessels and spinal cord damage [8] Bloor, Wrenn, and Margolis [9] showed similar changes in vascular permeability and progressive edema in the monkey brain after injecting 50-75% iodopyracet Recently Tarazi, Margolis, and Grimson [10] reported the experimental production of spinal cord

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Read before the eighth International Congress of Radiology, Mexico City, July 25, 1956 lesions in dogs, using equal amounts of 70% iodopyracet and 70% acetrizoate The lesions were mainly in the gray matter, were less marked in the white matter, but approached complete transection in some cases The incidence of severe cord damage was higher with acetrizoate than with iodopyracet, apparently due to the higher iodine concentration in the former Thomson and co-workers [10] have also produced massive renal destruction by injecting the same mediums directly into one renal artery

As a result of such experiences, the development of safer contrast materials has been stimulated Early in 1955 we undertook a clinical study of the salts of diatrizoate (Hypaque) as opacification mediums in angiography Favorable reports had already appeared regarding the use of a 50% solution of the sodium salt in intravenous urography Bodner, Howard, and Kaplan [11] reported its use in 300 cases of intravenous urography and noted a higher percentage of diagnostic contrast in the x-ray films and a greatly decreased incidence of undesirable side-effects as compared to acetrizoate, iodopyracet, and iodomethamate (Neo-Iopax) These observations have been substantiated by Engelhardt and Jacobson [12] and by Lentino and others [13] The latter have also reported favorable experiences with Renografin, a mixture of the sodium and methylglucamine salts of diatrizoate Our studies are concerned with the sodium salt of diatrizoate and also a mixture of the methylglucamine and sodium salts in the proportion of 2 to 1 Eighty-three patients were studied 42 for phlebography, 28 for peripheral arteriography, and 13 for aortography

Untoward Reactions with Different Contrast Mediums Used for Phlebography

	Total No of Limbs	Systemic Reactions		Local Pain and Spasm			Total No of Untoward Reactions
		Nausea	Urticaria	Slight	Moderate	Severe	
Sodium salt of diatrizoate	27	1	1*	2	7	4	15
Methylglucamine and sodium salts of diatrizoate	23	1		5	1	1	8
Iodopyracet (controls)	2	2		1			8

* An additional patient developed urticaria after a test dose Phlebography was not performed

Phlebography

All the injections for the phlebograms were made precutaneously into a distal vein of an extremity Fifty-two limbs were injected 27 with the sodium salt of diatrizoate, 23 with a mixture of sodium and methylglucamine salts, and 2 with iodophyracet Most of the solutions were made in a 35% concentration for the lower extremities, although a 50% solution was used in the upper extremities At first, for all cases in which bilateral phlebography was to be performed, it was planned to use iodopyracet in one extremity and diatrizoate in the other After the first two cases, however, it seemed unjust to subject patients to the well-recognized distressing systemic effects of iodopyracet The table shows the incidence of untoward reactions

The opacification of the veins seemed generally more intense with diatrizoate or the combined salts than that to which we had previously been accustomed with iodopyracet (fig 1) With the use of the sodium 27 limbs, the results were excellent in 10 cases, good in 15, and unsatisfactory in 2 With the use of the methylglucamine and sodium salts in 23 limbs, results were excellent in 13 cases, good in 8, and unsatisfactory in 2 All four cases listed as unsatisfactory actually involved technical errors, so that the medium was not at fault In the others, a reasonably uniform technique was employed throughout Despite the small number of cases in this series, there appeared to be a significant difference between results with the mixed salts, which showed excellent intensity in 62%, as compared to those with the sodium salt alone, which showed excellent intensity in only 37%

Peripheral Arteriography

Peripheral arteriography was performed in 28 cases, none with use of general or spinal anesthesia All were performed by injection of the medium into the femoral artery, and, since more than one injection was used in some cases in order to demonstrate additional areas, 36 injections were performed in all In two cases the artery was exposed surgically, in the others a percutaneous route was used The sodium salt was employed 22 times, and the mixture of methylglucamine and sodium salts 14 times In all cases a 50% sc was used The dosage varied from 6 to 15 cc, depending on the nature and location of the lesion and the size of the patient There were no systemic reactions Approximately 45% of the patients complained of pain or burning in the injected leg after the sodium salt was used for arteriography In four these instances the pain was associated with tary motion The opacification was satisfactory every case but was considered excellent in 73% the sodium salt and 86% with the mixture (fig 2)

Aortography

Only 13 patients underwent aortography, and in of these cases injections were given by the bar route with no anesthesia other than local in tion of the skin with procaine A 50% solution of sodium salt was tried in the first four cases, but opacification was so poor that its use was dis A 90% solution of the mixture of methylglucamine sodium salts was then used At room temperature contains a precipitate which goes into solution the preparation is warmed to body temperature concentrated solution, however, is so viscous that with the ordinary injection technique, using a 17-gauge thin-walled needle, it was impossible to inject rapidly enough to achieve satisfactory opacification We also had the impression that the filling of the collateral channels was poor with this 90% solution, possibly because of the viscosity In the last five cases we used a 70% solution of the mixed salts

Between 20 and 30 cc was easily injected, so that the viscosity was not too much of a problem and the opacification was fairly satisfactory The most striking thing in these cases was the complete absence of any discomfort, and none of the patients seemed even aware that the contrast medium had been injected There were no systemic reactions

Comment

Toxicity studies[14] have been performed in the dog and rabbit to compare diatrizoate with acetrizoate. The dosage level required to produce death in the dog, using acetrizoate, was 6,300 mg per kilogram of body weight and in the rabbit, 5,200 mg per kilogram With diatrizoate the dosage levels necessary for death were 13,200 mg and 12,200 mg per kilogram respectively Diatrizoate thus appears to be approximately half as toxic as acetrizoate in the dog and rabbit Blood-brain barrier studies in the rabbit[14] revealed very slight evidence of extravasation with diatrizoate, both in the form of pure sodium salt and in the mixture of the methylglucamine and sodium salts, as compared to iodopyracet and acetrizoate, both of which produced marked evidence of extravasation As yet, no experimental studies to determine the possible effect on the spinal cord from large doses of diatrizoate have been performed Until special studies are done, such as those made by Tarazi, Margolis, and Grimson[9c] with acetrizoate, it should not be assumed that diatrizoate will not produce permanent paralysis when injected into the human aorta Furthermore, Thomson and co-workers[10] found that diatrizoate was only slightly less toxic than iodonyracet and acetrizoate when injected directly into the renal artery

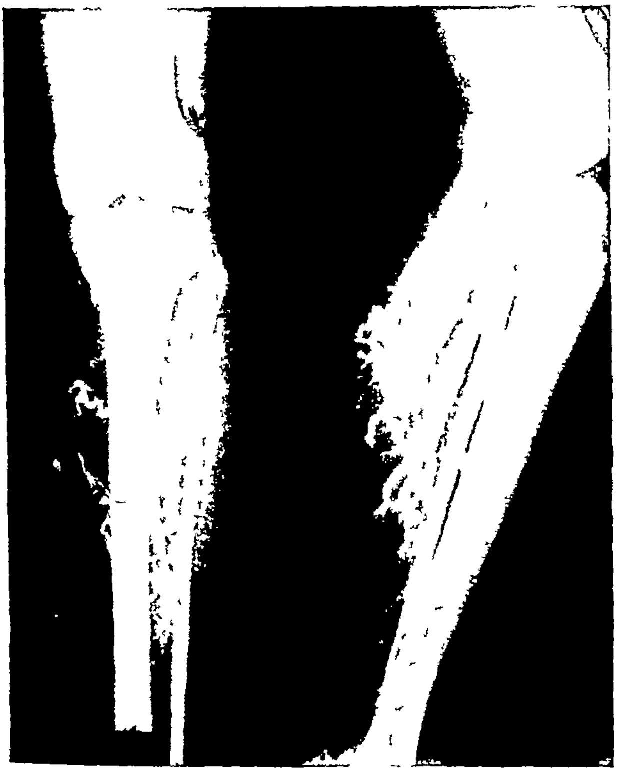

Fig 1—Phlebogram made with mixture of methylglucamine and sodium salts of diatrizoate Communicating and perforating veins are well delineated, as is deep venous system

In this preliminary study, there were no serious systemic effects after approximately 100 injections of diatrizoate salts for vascular opacification The only untoward general reactions were mild and few two transient episodes of nausea not associated with vomiting and one case of urticaria Local reactions were more frequent and consisted of varying degrees of pain and vasospasm of very brief duration This reaction was present only after the injection of the medium into smaller vessels and was completely absent after intra-aortic injections The pain was never severe enough to be intolerable and only rarely caused motion which interfered with the obtaining of a clear roentgenogram The vasospasm never led to ischemic symptoms, and there were no thromboses, even in the distal veins of the extremities

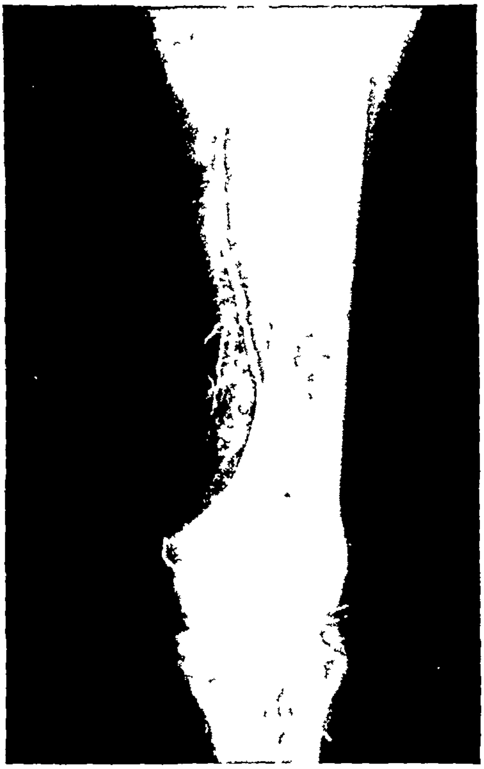

Fig 2—Femoral arteriogram made with mixture of salts of diatrizoate Although lumen of the popliteal artery is almost thread-like in size, it is still clearly visible along with fine collateral channels

Conclusions

When used for the roentgenographic opacification of blood vessels, diatrizoate (Hypaque) produces considerably fewer untoward general and local reactions than the other commonly used organic iodine compounds The mixture of the methylglucamine and sodium salts of diatrizoate appears to be better tolerated and to give more intense opacification than the sodium salt alone Further experimental work is indicated to determine possible direct toxic effects on spinal cord and renal tissues

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The diatrizoate salts used in this study were supplied by Winthrop Stearns, Inc, New York

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CLINICAL NOTES

ORAL CHOLANGIOGRAPHY

PRELIMINARY REPORT

Michael J Stamatakos, M D
and
Kenneth W Taber, M D, Allentown, Pa

Roentgenographic visualization of the bile ducts [illegible] oral administration of iopanoic acid (Telepaque) in patients with functioning gallbladders has been mentioned by nearly all authors reporting their experiences with this contrast material, but we have been unable to find any report in the American literature regarding such visualization in patients with nonfunctioning gallbladders We have frequently visualized the hepatic and common bile ducts 12 hours after the oral administration of iopanoic acid in patients whose gallbladders were not visualized, and, in several of these patients, as in the patient in case 58, the cystic duct was also clearly seen (fig 1) Heretofore such visualization of the ducts after oral administration of iopanoic acid had been ignored or interpreted as "contrast material" in the alimentary canal, as, for example, in the duodenum It is, therefore, the purpose of this report to present some of our experiences with oral cholangiography in order to place this method among the biliary diagnostic techniques

Although a great majority of nonvisualized gallbladders are considered pathological, clinicians occasionally find difficulty in determining whether nonvisualization of the gallbladder is due to pathology in this organ or to impaired excretory function of the liver The differential diagnosis then becomes important, because surgery is contraindicated in liver disease This differential can be made by oral cholangiography

The oral cholangiogram of the patient in figure 2 (case 59) is an example of this fact A stone obstructing the cystic duct was mentioned in the x ray report of this patient before operation, when the physician was about to treat him for hepatitis, and was found at surgery We gave this preoperative opinion because of the concentration of the 'dye' in the common duct with nonvisualization of the gallbladder

Oral cholangiography is so much safer, cheaper, and easier than the intravenous method that we prefer to use it first The intravenous technique may be used to establish more clearly the presence of a stone in the common duct subsequent to the oral technique, as was done in the patient in case 46, whose cholangiograms are shown in figure 3 and in whom the stone was subsequently removed from the common duct at operation

The cholangiogram in figure 4A (case 14) shows the visualization of the common duct by the oral technique An intravenous pyelogram is presented on this same patient in order to show that the internal structures of the right kidney could not have been interpreted as biliary radicles by this method Figure 5 (case 39) shows, for comparison, the common ducts as visualized by both oral and direct 'T-tube'

Third-year resident in radiology (Dr Stamatakos) and Director, Department of Diagnostic Roentgenology (Dr Taber) ared Heart Hospital

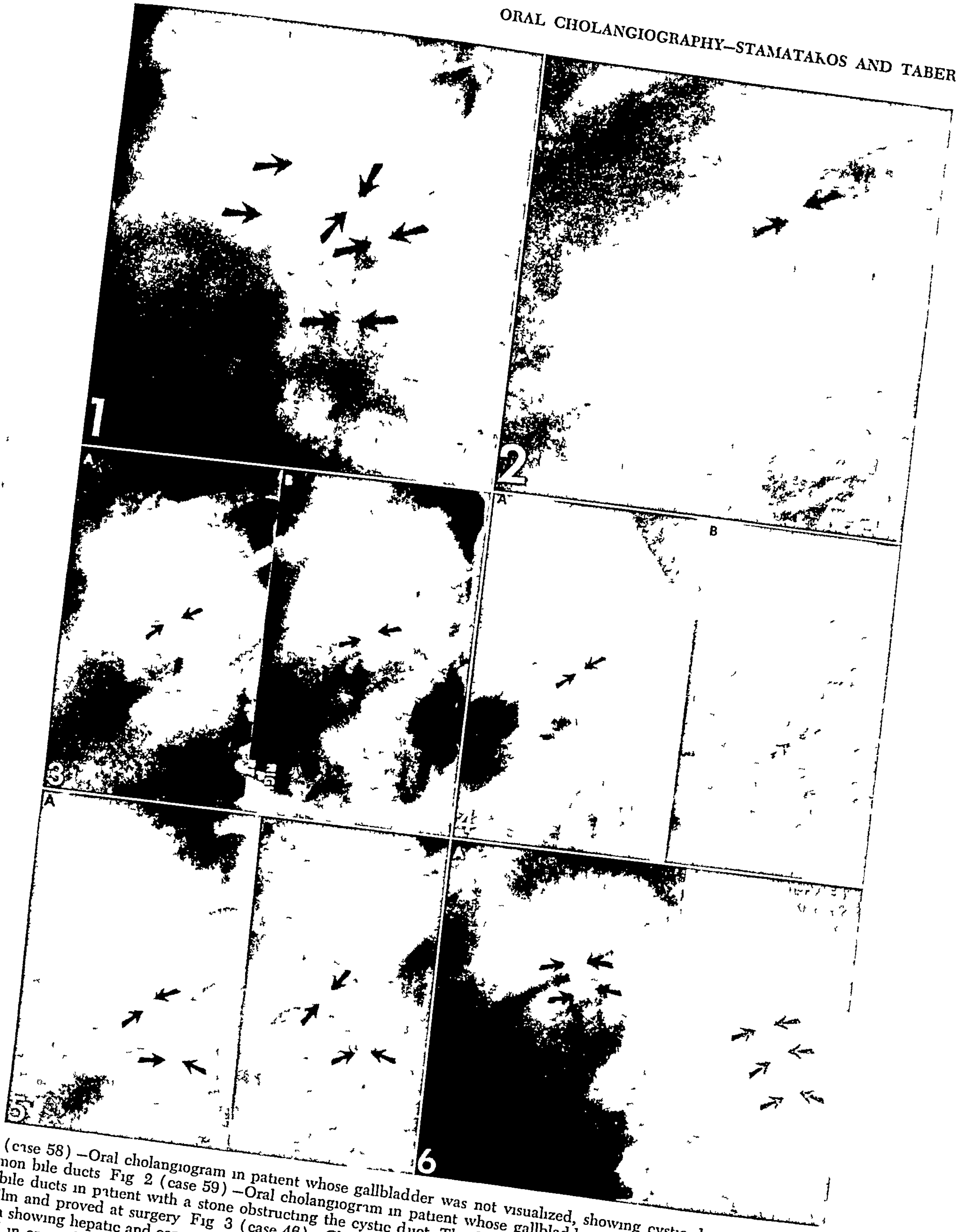

Fig 1 (case 58)—Oral cholangiogram in patient whose gallbladder was not visualized, showing cystic duct in addition to hepatic and common bile ducts Fig 2 (case 59)—Oral cholangiogram in patient whose gallbladder was not visualized, showing hepatic and common bile ducts in patient with a stone obstructing the cystic duct This had been reported preoperatively on the basis of this one 12 hour film and proved at surgery Fig 3 (case 46)—Cholangiograms in patient whose gallbladder was not visualized A oral cholangiogram showing hepatic and common bile ducts B, intravenous cholangiogram on same patient to verify common bile duct calculus mentioned in original report on A Fig 4 (case 14)—A, oral cholangiogram showing biliary tree B intravenous pyelogram of right kidney of same patient for comparison, to show that the internal structures of the kidney could not have been interpreted as biliary radicles by this method Fig 5 (case 39)—A oral cholangiogram showing biliary radicles B direct T-tube cholangiogram on the same patient for comparison Fig 6 (case 30)—A, oral cholangiogram showing biliary radicles B intravenous cholangiogram on the same patient for comparison

Data on Sixty-seven Patients in Whom Oral Cholangiography with Iopanoic Acid (Telepaque) Failed to Demonstrate the Gallbladder

Case No	Common Duct Visualized	Age Yr	Pathological Gallbladder Proved at Surgery	Stones in Gallbladder	Stones in Common Duct	Large Common Bile Duct at Surgery	Clinical Evidence of Liver or Common Duct Disease	Remarks
1	Yes	54						No operation
2	Yes	67	Yes	Yes		?		
3	No	39	Yes	Yes	Yes		Yes	
4	Yes	71						No operation
5	Yes	50						No operation
6	Yes	85						No operation
7	Yes	64	Yes	Yes		?		
8	No	49					Yes	
9	No	46	Yes	Yes			Yes	Inflammation of common bile duct
10	Yes	57	Yes	Yes		No		
11	Yes	72	Yes					Papillary adenocarcinoma of gallbladder
12	Yes	40	Yes	Yes		No		
13	Yes	64	Yes	Yes		No		
14	Yes	57						No operation
15	Yes	41						No operation
16	Yes	76	Yes	Yes	Yes			
17	Yes	67						No operation
18	No	64					Yes	
19	Yes	63						No operation
20	Yes	59						No operation
21	No	74					Yes	Carcinoma of stomach with metastasis
22	Yes	38						No operation
23	No	73						Diabetes
24	Yes	65	Yes	Yes		Yes	*	
25	Yes	67						
26	Yes	45	Yes	Yes		?		
27	Yes	48	Yes			Yes		
28	No	62					Yes	
29	Yes	60	Yes	Yes		Yes		
30	Yes	75						No operation
31	Yes	60						No operation
32	Yes	55	Yes	Yes		Yes		
33	Yes	53	Yes	Yes		?		
34	No	16	Yes				Yes	Inflammation of common duct
35	Yes	56	Yes	Yes		?		
36	Yes	32	Yes	Yes		Yes		
37	No	51	Yes				Yes	Obstruction of common duct
38	Yes	43						No operation
39	Yes	61	Yes			Yes		
40	No	80					*	
41	No	27					Yes	
42	No	46	Yes			No	Yes	
43	Yes	25					Yes	No operation
44	Yes	58	Yes	Yes		?		
45	No	67						Pyloric obstruction
46	Yes	60	Yes	Yes	Yes			
47	No	72					Yes	
48	Yes	62	Yes	Yes		Yes		
49	No	72			Yes		Yes	Painless jaundice
50	No	79	Yes				Yes	
51	No	55	Yes	Yes		No	Yes	
52	Yes	72						No operation
53	Yes	58	Yes	Yes		Yes		
54	Yes	56	Yes	Yes		?		
55	Yes	[illegible]	Yes	Yes	Yes			
56	No	49					Yes	Elevated bilirubin level, obstructive jaundice
57	Yes	80	Yes	Yes		Yes		
58	Yes	68						No operation
59	Yes	61	Yes	Yes		No		
60	Yes	75						No operation
61	Yes	82						No operation
62	Yes	37	Yes	Yes		Yes		
63	No	36	Yes	Yes			?*	Stone in cystic duct
64	Yes	33						No operation
65	Yes	57	Yes	Yes	Yes			
66	Yes	60					Yes	
67	Yes	18	Yes	Yes				

* Patient not examined for clinical evidence of disease of liver or common duct

cholangiography Figure 6 (case 30) also shows the bile ducts as visualized by both oral and intravenous techniques for comparison

Material and Methods

The only patients included in this study are those whose gallbladders had not been removed and whose gallbladders could not be visualized even with "reinforcement' Reinforcement consisted of administration of iopanoic acid a second time 12 hours after the first examination and examination of the patient 12 hours after this, or 24 hours after the first examination, with the patient remaining on a fat-free diet all the while If the gallbladder was faintly visualized at any time, the patient was excluded from the study The usual routine for oral cholecystography was followed, including reinforcement for a second day in all cases in which the gallbladder was not visualized the first day

Results

Of the 724 most recent cholecystograms, 67 (9 2%) failed to demonstrate iopanoic acid in the gallbladders of patients who had not had that organ removed These 67 cases constitute the present study group (see table) Forty-eight (71 4%) of the 67 patients with nonvisualized gallbladders showed iopanoic acid in the common bile duct Neither the gallbladder nor the common bile duct was visualized in 19 patients (28 6%), but in only 4 of these 19 patients was this nonvisualization not explained by clinical evidence of liver or common duct disease Three of the four patients were not examined for such evidence, in the fourth, complete pyloric obstruction explained this nonvisualization We are unable to explain why the common duct was visualized in two of the patients with clinical evidence of liver disease These findings suggest to us that the hepatic and common bile ducts take over the concentrating function of the gallbladder when that organ is not functioning

Summary and Conclusions

Seven hundred twenty-four oral cholecystograms were made, with iopanoic acid (Telepaque) used as the contrast medium, in patients who had not had their gallbladders removed In every patient with nonvisualization of the gallbladder, either the common bile duct was demonstrable or the patient had clinical evidence of liver or common bile duct disease, with four possible exceptions In one such exception there was complete pyloric obstruction, and the other three patients were not examined for clinical evidence of liver or common duct disease These findings indicate that, with a careful examination, the common duct can be visualized in patients with gallbladder disease provided they do not have malfunctioning livers or common bile ducts Also, with the perfection of this technique, a new diagnostic tool can be added to gastrointestinal studies

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COUNCIL ON DRUGS

Formerly the Council on Pharmacy and Chemistry

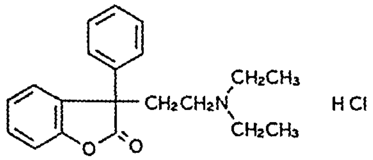
NEW AND NONOFFICIAL DRUGS

Formerly New and Nonofficial Remedies

Monographs and supplemental statements on drugs described here and in subsequent editions of New and Nonofficial Drugs are based on the evaluation of available scientific data and reports of investigations Applicable commercial names for preparations of evaluated drugs are listed at the end of monographs and parenthetically in the text of supplemental statements, additional commercial names of which the Council is informed will be included with subsequently published supplemental statements and annual editions of New and Nonofficial Drugs

H D Kautz, M D, *Secretary*

Amolanone Hydrochloride —3-(β-Diethylaminoethyl) -3-phenyl-2-benzofuranone hydrochloride —The structural formula of amolanone hydrochloride may be represented as follows



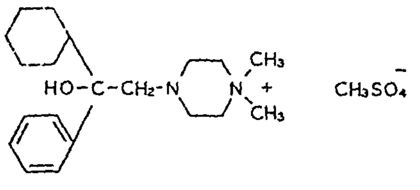
Actions and Uses —Amolanone hydrochloride is a benzofuranone derivative with both anticholinergic and local anesthetic actions The drug formerly was used as an intramuscularly administered antispasmodic for the relief of ureteral colic due to calculi, spasm, and instrumentation, a purpose for which it has been withdrawn Its clinical use is now confined exclusively to topical anesthesia of the lower urinary tract When it is instilled into the urethra, anesthetic effects are stated to become apparent within 5 minutes and to persist for 15 to 30 minutes Accordingly, the drug is proposed for the production of topical anesthesia prior to carrying out such urologic procedures as catheterization, urethral dilatation, cystoscopy, and panendoscopy It is also proposed for the relief of pain in such conditions as interstitial cystitis with ulceration (Hunner's ulcer) However, because some investigators report unsatisfactory results with this agent, it is difficult to define with certainty the real usefulness of amolanone hydrochloride as a topical anesthetic Some urologists indicate that the drug is equal or superior to butacaine and procaine, a minority has been unable to produce satisfactory anesthesia Hence, the ultimate usefulness of this drug as a local anesthetic must await the results of further clinical experience

On the basis of prior experience with the drug as a systemic spasmolytic and more recent reports on its use as a topical anesthetic, amolanone hydrochloride may be described as a drug of low toxicity After intraurethral instillation, *only* isolated instances of slight giddiness, a transitory burning sensation, or mild dizziness have been reported There is no evidence that appreciable quantities of the drug are absorbed from the urethral mucosa, and it has been used in patients with lower urinary tract bleeding without untoward effects In view of its apparently low order of toxicity and the favorable reports so far recorded, further careful trial of the local anesthetic action of this drug is indicated

Dosage —Amolanone hydrochloride is employed as a 0 33% solution (3 3 mg per cubic centimeter) for intraurethral instillation prior to *performing* urologic procedures This solution should not be injected into the tissues The urethra is filled with the solution, and the meatus is closed with a penile clamp After three to five minutes, the clamp is removed and the procedure begun

Applicable commercial name Amethone Hydrochloride
Abbott Laboratories cooperated by furnishing scientific data and in the evaluation of amolanone hydrochloride

Hexocyclium Methylsulfate —N-(*β*-Cyclohexyl-*β*-hydroxy-*β*-phenylethyl)-N′-methylpiperazine dimethylsulfate —The structural formula of hexocyclium methylsulfate may be represented as follows



Actions and Uses —Hexocyclium methylsulfate, a synthetic anticholinergic quaternary ammonium compound, is chemically related to certain other drugs of this class and is qualitatively similar to these drugs in pharmacological action After therapeutic doses have been administered, the autonomic blocking effects of hexocyclium methylsulfate are limited to effector cells innervated by postganglionic cholinergic nerves At sufficient doses, in animal experiments, the drug inhibits gastrointestinal motility and spasm, diminishes gastric secretion, dilates the pupil, inhibits salivation, relaxes the musculature of the bladder, and counteracts the muscarinic effect of choline esters In these respects, its principal pharmacological actions as well as side-effects may therefore be described as atropine-like On a weight basis, the drug is less potent than atropine in vitro but is more potent by a number of tests in vivo In large doses in animals, hexocyclium methylsulfate (and other compounds of its class) produces ganglionic blockade and curare-like effects interfering with neuromuscular transmission The metabolic fate and excretion of hexocyclium methylsulfate are not known The drug is readily absorbed from the gastrointestinal tract Its onset of action is prompt, and, after ordinary doses, anticholinergic effects persist about three to four hours No apparent cumulative toxic effect in animals has been observed after prolonged administration of large daily doses

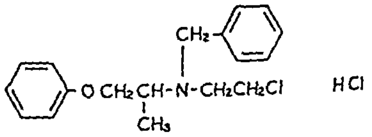
Hexocyclium methylsulfate may be used for the adjunctive management of peptic ulcer and other gastrointestinal disorders associated with hyperacidity, hypermotility, and spasm in which anticholinergic action might be considered beneficial The antisecretory response to a fixed dose of hexocyclium methylsulfate appears to be variable In some patients, gastric secretion is reduced to the point of anacidity, in others, the response is less marked or is minimal The latter might be attributed to insufficient dosage For the control of functional disorders of the gastrointestinal tract, especially peptic ulcer, hexocyclium methylsulfate should not be employed to the exclusion of dietary restriction and the use of antacids and sedatives In certain cases, these measures may be more important in the therapeutic regimen than anticholinergic drugs In some cases, anticholinergic drugs are not indicated or are without benefit Although hexocyclium methylsulfate effectively allays hypermotility and hyperacidity, there is no evidence that it possesses greater therapeutic effectiveness than certain other drugs of this class

Side-effects associated with hexocyclium methylsulfate are those of anticholinergic drugs in general Dryness of the mouth (xerostomia) may be encountered when therapeutically effective doses are administered, but it is often transient and is usually mild Likewise, blurring of vision, difficulty in urination, and palpitation may occur but usually only with excessive doses Side-effects can often be minimized by adjustment of dosage As with any new drug, until more experience is gained, physicians should be alert to the possible development of serious untoward effects that may result from continued use of the drug

Dosage —The suggested initial dosage for adults is 25 mg four times daily, administered orally, preferably before meals and at bedtime The maintenance dosage of hexocyclium methylsulfate should be arrived at by careful adjustment to the needs and tolerance of the individual patient

Applicable commercial name Tral
Abbott Laboratories cooperated by furnishing scientific data to aid in the evaluation of hexocyclium methylsulfate

Phenoxybenzamine Hydrochloride — N-(2 Chloroethyl)-N-(1-methyl-2-phenoxyethyl)benzylamine hydrochloride —The structural formula of phenoxybenzamine hydrochloride may be represented as follows



Actions and Uses —Phenoxybenzamine hydrochloride is a potent adrenergic blocking agent of the *β* haloalkylamine series The pharmacology of this drug and that of its closely related congener, dibenzyl-β-chlorethylamine (Dibenamine), have been carefully studied. The drug selectively blocks the excitatory response of smooth muscle and exocrine glands to epinephrine but does not abolish the inhibitory response of smooth muscle or the myocardium to epinephrine-like agents. Thus, adrenergic blockade with phenoxybenzamine has been compared to "chemical sympathectomy." As with all agents in this category, phenoxybenzamine blocks the response to endogenous or exogenous epinephrine more effectively than it blocks the response to adrenergic nerve stimulation. Hence, the separation of adrenergic blocking agents into adrenolytic and sympatholytic drugs is now believed to be largely artificial, although phenoxybenzamine would ordinarily be considered a representative of the former. The drug reduces or abolishes the pressor response not only to epinephrine but to other sympathomimetic amines as well; in experimental animals, adrenergic blockade with phenoxybenzamine protects against doses of epinephrine that would ordinarily be supralethal. Before adrenergic blockade has been completed, the effects of the drug can be overcome by large doses of epinephrine. Once full blockade has been produced, however, neither epinephrine nor any other drug now known will break through it, and this blocking action is persistent. The precise site of adrenergic blockade with phenoxybenzamine has been accurately pinpointed. Studies have shown conclusively that the drug does not alter or block the release of adrenergic mediator, influence thoracolumbar (sympathetic) outflow or spinal reflex arcs, cause sympathetic ganglionic blockade, nor alter the ability of smooth muscle to contract to nonsympathomimetic musculotropic stimuli. Hence, the drug acts directly and specifically on adrenergic receptor cells in a noncompetitive manner in such a way that the receptiveness to adrenergic (sympathomimetic) stimuli is decreased or abolished.

Although phenoxybenzamine hydrochloride is sparingly soluble in water, at least 20 to 30% of an orally administered dose is absorbed in an active form from the gastrointestinal tract. The duration of action of the drug is prolonged; after a single full dose, adrenergic blockade persists for three to four days or longer. Approximately 50% of the drug appears in the urine and bile within 12 hours after oral administration.

Except for a mild antihistaminic action and moderate miosis, the effects of the drug are predominately those of peripheral vasodilation. Thus, increases in peripheral blood flow and skin temperature and a lowering of blood pressure in patients in both supine and erect positions are the outstanding effects of adrenergic blockade with this agent. The drug also suppresses the hyperglycemic response to epinephrine and blocks epinephrine-induced discharge of corticotropin. The ancillary actions of phenoxybenzamine are minimal; it has no effect on the parasympathetic system and produces only negligible changes in gastrointestinal tone and motility.

Phenoxybenzamine and related β-haloalkylamines previously were considered interesting and valuable laboratory tools for pharmacological research but of little clinical usefulness. However, with the elucidation of the discrete adrenergic blocking properties of these compounds, it became apparent that they might prove useful for the treatment of certain peripheral vascular diseases. Subsequent clinical trials have confirmed not only their efficacy for this purpose but also the superiority of phenoxybenzamine hydrochloride over other chemically related compounds in the series. As might be expected from its pharmacological actions, phenoxybenzamine is more effective in those peripheral vascular diseases characterized by excessive vasospasm than in those of the organic occlusive forms. Thus, the drug is of value in such conditions as Raynaud's syndrome, acrocyanosis, causalgia, chronic vasospastic ulceration of extremities, and frostbite sequelae; it may also be of value in those forms of obliterative or obstructive arterial disease that are complicated by vasospasm of vessels remaining patent. Because of its specificity, effectiveness when given orally, and prolonged action, it is considered preferable to other available adrenergic blocking agents for the medical management of these conditions. If sufficient time is allowed for full adrenergic blockade to develop, a large percentage of patients with vasospastic involvement may be expected to show objective and subjective improvement including relief of causalgic pain, healing of lesions, clearing of cyanosis or ischemia, and increase in skin temperature. The drug is considered by some authorities to be superior to cervical sympathectomy for most cases of bilateral digital ischemia of the upper extremities, and its therapeutic trial is indicated in cases of severe causalgia before sympathectomy is performed. In patients hospitalized for acute peripheral vascular accidents, phenoxybenzamine also appears to be useful to combat reflex spasm of collateral vessels and of the originally occluded vessel after embolectomy. It has been administered to patients with such conditions as thromboangiitis obliterans (Buerger's disease) and intermittent claudication, but the results have been only fair.

Phenoxybenzamine hydrochloride has been employed for the management of moderate to severe hypertension. Although high doses undoubtedly lower blood pressure, clinical experience has indicated that excessive postural hypotension and other undesirable effects usually outweigh the benefits attained. Hence, the drug is no longer considered useful for this purpose when employed alone. It has, however, been combined in small amounts with the alkaloids of Rauwolfia and Veratrum for the management of hypertension. Other experimental uses of the drug have included the treatment of toxemia of pregnancy, cardiospasm, glaucoma, and the preoperative management of pheochromocytoma. At present there is insufficient evidence to justify the use of the drug in any of these conditions. Since phenoxybenzamine blocks the excitatory but not the inhibitory response of smooth muscle to epinephrine, it has been employed intravenously in patients with status asthmaticus to permit the safer administration of exceedingly large doses of epinephrine. While this is a logical clinical application of the drug's pharmacological actions, this use should at present be considered experimental.

Most of the side-effects of phenoxybenzamine result from the ability of the drug to produce adrenergic blockade and may be considered for the most part extensions of the therapeutic action The side-effects most commonly encountered are nasal congestion, miosis, tachycardia, and postural hypotension Occasionally, sedation and drowsiness occur, and male patients sometimes experience failure of ejaculation Since the drug blocks salivation in those glands innervated by sympathetic fibers, some degree of xerostomia may occur The drug produces little, if any, gastric distress, nausea, or vomiting Most side-effects tend to decrease as therapy is continued The development of some tolerance after prolonged therapy is likely, although complete refractoriness to the drug is rare

Phenoxybenzamine is contraindicated in any condition in which a fall in blood pressure may be undesirable or dangerous It should be given with extreme caution to hypertensive patients with cerebral atherosclerosis or renal damage In patients with compensated congestive heart failure or coronary artery disease, the tachycardia that sometimes accompanies high doses may precipitate frank failure and anginal attacks Adverse hematopoietic effects from phenoxybenzamine have not been reported in either laboratory studies or clinical use

Dosage —Phenoxybenzamine hydrochloride is administered orally Dosage is variable and must be individualized according to the therapeutic response and the appearance of side-effects As a general guide, 10 to 20 mg once daily may be given to initiate therapy After four days at this dosage, the daily amount is increased by 10 mg and thereafter increased by similar increments until a satisfactory response is obtained The usual maintenance dosage ranges from 20 to 60 mg once or twice daily In some patients, particularly those in whom hypertension is present, dosages of 0 2 Gm or more per day may be necessary At least two weeks or more are required before full adrenergic blockade develops and maximal therapeutic results are obtained

Applicable commercial name Dibenzyline

Smith, Kline & French Laboratories cooperated by furnishing scientific data to aid in the evaluation of phenoxybenzamine hydrochloride

COUNCIL ON FOODS AND NUTRITION

Report to the Council

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Philip L White, Sc D , *Secretary*

ROLE OF HORMONES IN PROTEIN METABOLISM

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Despite the large volume of research that has been published in the field of endocrinology during the past 50 years, the precise biochemical function of a hormone has yet to be established It is clear, however, that several hormones influence protein metabolism in such a way as to produce effects of considerable interest to the clinician as well as to the biochemist The purpose of this presentation will be to consider both the clinical and biochemical implications of the hormonal adjustments in a number of common medical situations

The object of endocrine control might be stated to be an adjustment of metabolism through the intervention of numerous hormones acting in specific biochemical or biophysical areas to produce optimum substrate concentrations, adequate enzyme activity, and appropriate work performance in all organs and tissues in a variety of physiological and pathological states In some instances, two hormones may stimulate a single process in different directions Such an arrangement lends balance to homeostasis, increases the inertia of the organism, and makes for more stability under changing metabolic conditions

Because of its supercatalytic function in metabolism, the biological activity of hormones is influenced by many other parameters such as genetic strain, sex, age, diet, activity, emotionality, bacterial flora, physical environment, dosage, and time of observation In certain biological responses, Ingle[1] has demonstrated that the hormones may play only a permissive role, making possible but not being solely responsible for the given response

The role of the hormones in protein metabolism is considered herein in connection with five clinical situations that involve imbalance of endocrine secretions under physiological or pathological conditions The physician who is constantly faced with these problems must judge the endocrine changes per se and the relative contribution of many of the parameters such as diet, age, heredity, infections, or inflammation that are important in influencing the final clinical

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picture The role of diet therapy in specific situations and its relationship to the endocrine aspects of each case will be discussed

Growth

Childhood and adolescence afford unusual opportunities for study of the effects of various hormones In adults, hormonal dysfunction is manifested largely by unseen metabolic and physiological disturbances, as is the case with nutritional disorders in the adult, with the exception of frank deficiency disease In childhood or adolescence, these same metabolic disorders involving nutrition and hormonal secretion may alter growth and differentiation of tissues and cause a marked deviation from the usual patterns of somatic growth and development

Normal growth depends upon many factors, including genetic control, endocrine control, and nutritional status Furthermore, normal digestion, absorption, and circulation must be present in order to guarantee the delivery of nutrients to their locus of action Normal kidney function is essential for the maintenance of an optimum internal environment for the occurrence of anabolic reactions Therefore, growth failure may result from a wide variety of factors, including inborn errors of metabolism, endocrine insufficiency, nutritional deficiency, and breakdown in the function of any of the major organ systems

The following hormones are known to be concerned with the processes of growth the growth hormone of the anterior pituitary, estrogens, testosterone and other androgens, insulin, and thyroxin and other thyroid hormones All of them promote the storage of nitrogen as tissue protein and thus stimulate a positive nitrogen balance under optimum conditions None of these hormones alone is sufficient for normal growth, and all are thought to have dissimilar modes of action

Pituitary growth hormone is chiefly responsible for growth in the years prior to puberty In these years, there is a high serum phosphorus level, an increased plasma growth hormone level, and no epiphysial closure In the absence of pituitary growth hormone, pituitary dwarfism occurs Thyroxin and insulin are also required for growth in this period, if either is absent, dwarfism also occurs At birth, the ratio of upper to lower skeletal segments is 1 7 1 0, at age 10 years, it is 1 1 A hypothyroid dwarf (cretin) who has the height of a 2-year-old retains infantile proportions, that is, a ratio of upper to lower skeletal segments of 1 5 1 0 [2] Dwarfs produced by diabetes or a lack of pituitary growth hormone develop more mature proportions, although their total height is reduced Since the thyroid hormone is important in differentiation as well as in growth, hormonal therapy of cretins is of the utmost importance in order to preserve normal development as well as growth

Just prior to the onset of puberty, pituitary gonadotropins are elaborated They stimulate the gonads to secrete their characteristic steroid hormones that stimulate the growth of both bone and soft tissue Testosterone and other androgens cause growth of both bone and soft tissue, maturation of the skeleton, and closure of the epiphyses The main metabolic effect of estrogens, on the other hand, is the stimulation of bone anabolism through retention of calcium and phosphorus In the male, the gonads secrete androgens, and the adrenal cortex secretes small amounts of estrogens In the female, whose gonads secrete estrogens, the pubertal growth spurt and skeletal maturation are caused by elaboration of an anabolic steroid in the adrenal cortex

Pituitary growth hormone does not produce epiphysial closure, hence, gigantism can result from excessive pituitary growth hormone secretion Although the androgens stimulate growth, they also provide self-limitation of growth by closure of the epiphyses It is probable that they also inhibit pituitary growth hormone and thus cause the decrease in serum inorganic phosphorus and in plasma growth hormone concentration that occurs at puberty

In order to explore the mechanisms by which these hormones that influence growth exert their physiological effects, numerous experiments have been performed to study their effects upon protein and amino acid metabolism It is impossible to review completely the whole literature on this subject, but selected studies can be summarized

Growth hormone exerts a profound effect upon the nitrogen and fat metabolism of the mammal Lee and Ayres [3] observed that hypophysectomized rats lost more protein and less fat from their body stores than did pair-fed normal control animals over a period of 30 days Hoberman [4] investigated the metabolism of N^{15}-glycine in normal, hypophysectomized, and hypophysectomized–growth hormone–treated rats By analysis of the data on isotope distribution in tissue protein, plasma amino acid nitrogen and urinary nitrogen, he was able to calculate the rates of protein anabolism and catabolism, the rates of amino acid anabolism and catabolism, and the size of the amino acid pool He concluded that hypophysectomy caused a decrease in the rate of protein synthesis, an increase in amino acid catabolism, a decrease in the size of the amino acid pool, and no change in the other rates These alterations in the metabolism of nitrogen in the hypophysectomized rat were returned toward normal by the administration of growth hormone

Bartlett and Gaebler [5] studied the metabolism of N^{15}-glycine in the normal dog during nitrogen balance and after the injection of growth hormone that induced a positive nitrogen balance Analysis of the isotope data suggested that in this species as well as in the rat, growth hormone caused a reduction in the amino acid catabolism of tissue and an increased rate of protein synthesis Whether the effect upon protein synthesis or amino acid catabolism was primary could not be ascertained from the isotope data

In an attempt to delineate further the role of growth hormone, Russell [6] studied its effect on the rate of urea formation in nephrectomized animals, with and without administration of exogenous amino acids In these experiments, a single injection of growth hormone was given one hour prior to the beginning of observations on the blood urea nitrogen As is shown in figure 1, when no amino acids were given, the effect of growth hormone was negligible, if casein hydrolysate was administered, however, growth hormone had a marked effect, in proportion to dose, upon the rate of urea formation The nitrogen retained was converted to protein, since free amino acid levels in the blood actually fell during treatment with growth hormone In eviscerated, nephrectomized rats, Russell was able to show that growth hormone suppressed the rise in plasma amino acid nitrogen seen in control animals This observation in animals deprived of the liver, which is the chief site of amino acid catabolism, suggests that growth hormone is concerned chiefly with the reaction amino acids $\rightleftharpoons$ protein All of the data cited, including those obtained in isotope studies, support the view that the primary action of growth hormone is to promote the synthesis of tissue protein from cellular amino acids and thus shift the equilibrium toward protein anabolism

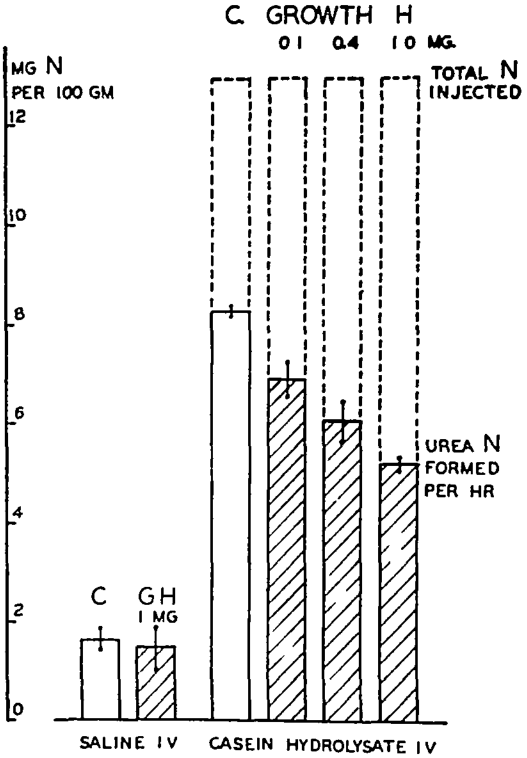

Fig 1 —Effect of growth hormone on rate of urea formation during first hour after infusion of saline solution and of casein hydrolysate in nephrectomized rats After Russell [6]

The action of growth hormone appears to be dependent upon normal energy production and utilization in tissues and upon the availability of substrate in adequate quantities Hazelwood, Bennett, and Nelson [7] have shown that the nitrogen-retaining effect of growth hormone is not seen in rats deficient in vitamin A, pyridoxine, pantothenate, choline, or protein When dietary protein is increased 6 to 24%, nitrogen retention on a fixed dose of growth hormone increases in the same proportion Beare, Beaton, and McHenry [8] observed similar negative effects of growth hormone therapy in rats deficient in riboflavin and pantothenate but noted that rats deficient in thiamine responded normally

Recently it was demonstrated that insulin is required for the optimum action of growth hormone Milman, DeMoor, and Lukens [9] found that three to four times the minimum maintenance dose of insulin was required in depancreatized cats to assure full responsiveness to growth hormone activity This observation holds an important clinical lesson for us If childhood diabetes is not treated vigorously, it may lead to significant dwarfism

The fact that both hypothyroid and hyperthyroid animals grow poorly and are distinctly less responsive to growth hormone than are normal animals focuses interest on the influence of thyroid hormone upon protein metabolism There is definitely an optimum thyroid hormone level for normal protein metabolism.

Protein Metabolism in Various Thyroid Conditions in Man

Condition	No of Patients	Rate of Protein Synthesis Mg of Nitrogen/Kg /Day
Hypothyroid	6	3.4
Euthyroid	4	7.6
Hyperthyroid	1	12.6

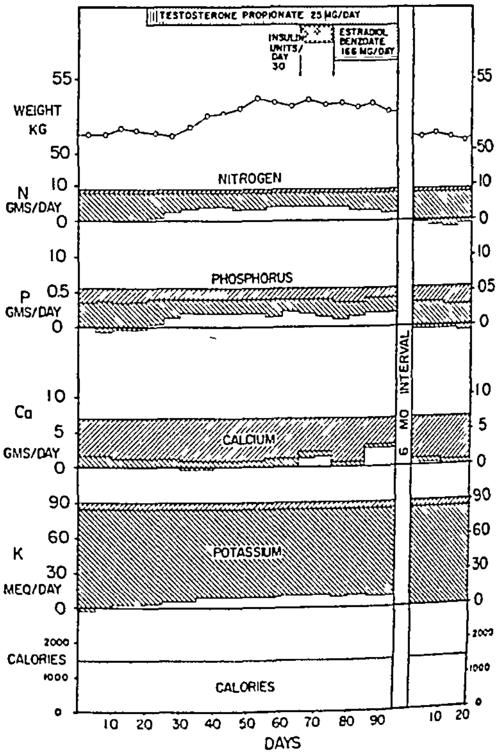

Fig 2 —Metabolic study of effect of testosterone propionate in woman, aged 25 with osteoporosis due to adrenal cortical hyperfunction (Cushing's syndrome) Redrawn from Albright and others [11]

Crispell, Parsons, and Hollifield [10] have shown by means of isotope techniques that the rate of protein synthesis is decreased in both myxedema and hyperthyroidism Their data are presented in the table The response of myxedematous patients to L triiodothyronine was slow Initially, there was a marked negative nitrogen balance as edema fluid containing protein was mobilized, and there was no increase in the rate of protein synthesis for an appreciable period of time in the treatment The mode of action of thyroid hor mone is still unknown The postulate that it produces adverse metabolic effects in hyperthyroid states by uncoupling oxidative phosphorylation is now being questioned It seems very clear that growth hormone is dependent for its efficacy upon several variables These include a normal nutritional status with an adequate intake of calories, protein, and vitamins, and a normal underlying endocrine structure, with particular reference to insulin and thyroxin

Androgens play a major role in stimulating growth and a positive nitrogen balance, especially in adolescence Available evidence suggests that androgens, like growth hormone, influence the reaction amino acids $\rightleftarrows$ protein, in the direction of protein synthesis Whether they do so by promoting anabolism of tissue protein from amino acids or by inhibiting catabolism of tissue protein to amino acids is not settled It has been observed in man that panhypopituitarism, which is unresponsive to growth hormone therapy, responds to testosterone propionate therapy with a typical protein anabolic effect Testosterone, in contrast to growth hormone, may influence nitrogen balance favorably in patients who exemplify unfavorable conditions for anabolism, such as those with adrenal cortical hyperfunction (Cushing's disease) and those who are undergoing weight reduction on low-calorie, low-protein diets The response of a patient with adrenal cortical hyperfunction to testosterone therapy is shown in figure 2 [11]

The response to androgen is not dependent upon the pituitary, the adrenal cortex, or the pancreas in the alloxan-diabetic rat Sirek and Best,[12] however, have shown that depancreatized dogs do not respond to testosterone given intramuscularly with the usual fall in plasma amino acid nitrogen and a positive nitrogen balance unless insulin is added to the regimen Homburger and Pettengill [13] have shown that both diet and genetic strain affect the response of mice to androgen Although the renotropic, clitorotropic, and adrenal suppressor effects of testosterone given intramuscularly were regularly noted, markedly restricted diets (in calories or protein), exceptionally high-protein diets, or variant strains of mice abolished the anabolic response to testosterone Although androgens appear to be more independent of nutritional status and of the intactness of other endocrine glands in exercising their anabolic effects than does growth hormone, the physiological activity of the androgens does not exist *in vacuo* but is related to many conditions of cellular physiology

Starvation

Caloric undernutrition, partial or absolute, is a stress for the mammal, and appropriate adaptation to it requires the interplay of endocrine factors It has been amply demonstrated that persons subjected to ablation or inactivation of the adrenal cortex or pituitary tolerate starvation poorly, fail to conserve their tissues in an appropriate way, and rarely survive a prolonged fast The following marked changes in endocrine activity occur with prolonged undernutrition amenorrhea in females and aspermatogenesis in males, decreased metabolic rates, pigmentations of the skin, hypotension, and weakness attributed to attenuated function of the pituitary, thyroid, adrenals, and gonads in association with malnutrition In Zubiran's [14] study, involution and atrophic changes in the glands were demonstrated in material from 195 autopsies Diminished functional activity was demonstrated by hormonal determinations in 201 patients and other functional tests in an additional 318 patients Lowered pituitary activity with diminished trophic hormone secretion was thought to precede the changes in the target organs, and, with improvement in nutritional status, normal function was reestablished in most cases

In acute starvation, the changes in endocrine activity are phasic, with secretion of large amounts of hormone by some glands during the transition from the fed to the fasting state and decreased output once a fasting state has been established In figure 3 are presented the balances of nitrogen, potassium, and sodium for the famous Levanzin during the period of his 31-day fast that was studied by Benedict in 1915 [15] It may be noted that total urinary nitrogen excretion increased from 7 Gm on the 1st day to 11 Gm on the 4th and then gradually diminished to 7 Gm again on the 31st day The first increase undoubtedly represents the loss of liver glycogen and other labile carbohydrate during the first two days of the fast with consequent loss of its protein-sparing ability This increased catabolism of protein is largely dependent upon 11-oxycorticoids acting to increase gluconeogenesis The second phase of change in nitrogen excretion, which is a slow decline from the 4th to the 31st day, is associated with a gradual decrease in over-all metabolic rate, a decrease in body size, and a diminution of the output of hormones by the pituitary, thyroid, and adrenal cortex Urinary potassium excretion paralleled the urinary nitrogen excretion during the fast, as might be expected from the mobilization of lean body tissue

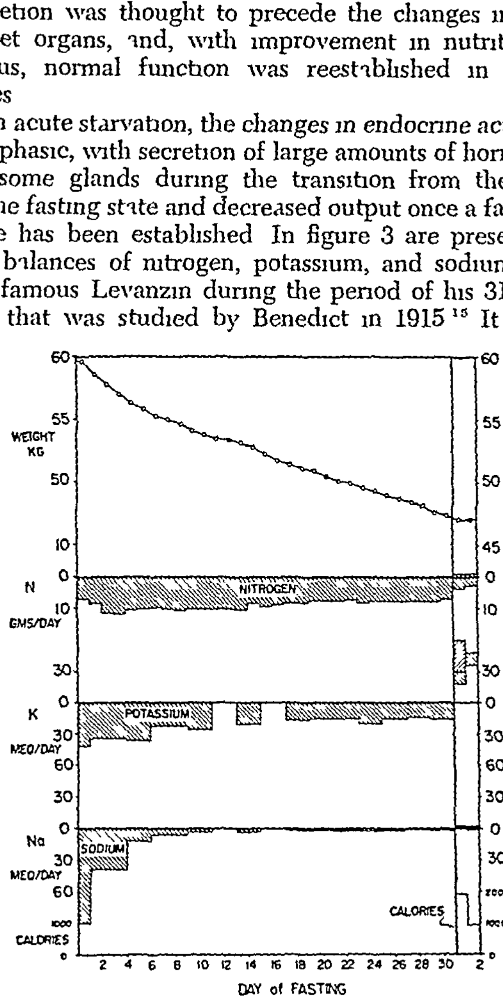

Fig 3 —Metabolic study of man aged 40, who voluntarily underwent 31-day fast Redrawn from Benedict [15]

except during the first few days when extra potassium was excreted during deglycogenation Urinary sodium excretion was markedly decreased after the second day of the fast, presumably as a result of increased aldosterone secretion, an effect that persisted during the fast despite a presumed decline in pituitary hormone level

Another case is that of a 36-year-old schizoid white male who voluntarily undertook a 30-day fast in order to improve his mind He lost 16 kg (35 lb) in weight over the month of his fast prior to admission to our metabolic unit and at that time showed all the signs associated with starvation He was 69 in (175 cm) tall, weighed 46 3 kg (102 lb), had a blood pressure of 70/40 mm Hg, and a pulse rate of 60 He was cold, weak, and acrocyanotic Urinalysis revealed a specific gravity of 1 009, acetone 4+, and sugar, albumin, and sediment negative The hematocrit reading was 50%, and the white blood cell count was 8,200 per cubic millimeter The blood sugar level was 56 mg per 100 cc, serum nonprotein nitrogen, 39 mg per 100 cc, total serum protein, 7 3 Gm per 100 cc, with an albumin-globulin ratio of 1 7, serum sodium level, 138 mEq per liter, serum potassium level, 5 3 mEq per liter, serum chloride level, 111 mEq per liter, and carbon dioxide, 25 mEq per liter Oxygen consumption was 155 cc per minute, equivalent to a basal metabolic rate of -30% The patient was placed on a metabolic-balance study and maintained in the fasting state for three days, whereupon he was repleted nutritionally by gradually increasing amounts of food over a 17-day period The balance data of his inpatient stay are presented in figure 4 The details of this study are presented elsewhere [16]

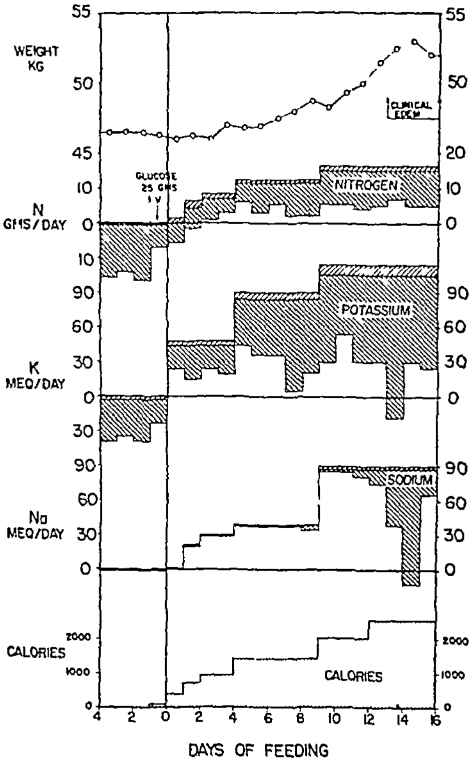

Fig 4 —Metabolic study of nutritional repletion of man, aged 37, who had undergone 33-day fast

On the patient's admission, the fasting plasma 17 hydroxycorticoids were 28 mcg per 100 cc, his urinary nitrogen level 15 Gm, and his urinary potassium output 40 mEq per day The reduction in urinary nitrogen and potassium seen in Levanzin on his 30th day of fasting was not noted in this patient, possibly because of less reduction in adrenal cortical activity in our patient during the fast When the patient's fast was broken by the administration of 25 Gm of dextrose intravenously on his 34th day, the carbohydrate produced both a nitrogen-sparing and a potassium sparing effect Thereafter he was fed by mouth, and promptly the nitrogen, potassium, and sodium balances became positive His retention of sodium was conspicuous, in fact, he excreted practically no sodium despite increased sodium intake for almost two weeks and developed clinical edema on the 15th day This behavior is typical of that of many starved patients upon refeeding and is a variant of starvation edema The serum protein levels were normal throughout the study Whether excessive aldosterone secretion persists into the period of refeeding a starved person or whether other changes in renal physiology persist to provide the basis of the abnormal sodium retention is a subject of continuing study

Fasting provides a stress that invokes an adrenal cortical discharge which stimulates gluconeogenesis from protein and possibly from fat Adequate sodium retention is assured through activation of mechanisms (not mediated via the pituitary) of aldosterone secretion During continued fasting, anterior pituitary secretions are reduced, with concomitant reduced activity of the thyroid, gonads, and adrenal cortex With prolonged chronic undernutrition, atrophy of these glands may occur

Diabetic Acidosis

Diabetes mellitus results from a disparity in the rate of insulin secretion by the pancreas and its demand by other tissues In many instances, particularly in overweight, middle-aged diabetics without ketosis, appreciable amounts of insulin are secreted [17] In these patients with more mild, nonketogenic diabetes, diet therapy is usually effective, insulin is rarely needed, and negative nitrogen balance is not seen On the other hand, patients with the juvenile type of diabetes tend to secrete little, if any, insulin They require insulin for maintenance, and, upon withdrawal of insulin, they develop ketosis, acidosis, and marked negative nitrogen balances The onset of ketosis in such diabetics is followed by an increase in 17 hydroxy-11-oxycorticoids in both plasma and urine, with an increase in gluconeogenesis

A study of the disposition of C^{14}-glucose in persons with stable, nonketogenic diabetes and in those with labile, ketogenic diabetes by Miller and his colleagues [18] has shown that, whereas the former group exhibited normal rates of turnover and oxidation of glucose to carbon dioxide, the latter group demon strated both overproduction and decreased oxidation of glucose to carbon dioxide Increased hepatic gluconeogenesis in persons with labile diabetes has been shown by Beam, Billing, and Sherlock [19] to be quickly reduced by insulin therapy

In figure 5 are charted the metabolic balances for nitrogen, potassium, and sodium in a young person with ketogenic diabetes studied by Atchley and coworkers [20] While receiving 85 units of insulin per day, this diabetic was in nitrogen, potassium, and sodium balance and excreted no sugar or ketone bodies in his urine Upon cessation of insulin therapy, however, the development of acidosis was rapid It was indicated by the prompt appearance of acetone and sugar in the urine, decrease in blood bicarbonate, loss of sodium and water, and onset of nausea, vomiting, and prostration These changes were accompanied by catabolism of lean body tissue, with concomitant losses of nitrogen and potassium As is shown in figure 5, administration of insulin quickly reversed these changes The effect of insulin in ketogenic diabetes illustrates well its anabolic effect The interrelationship of insulin with growth hormone and androgens in promoting anabolism of protein has been mentioned earlier in this discussion

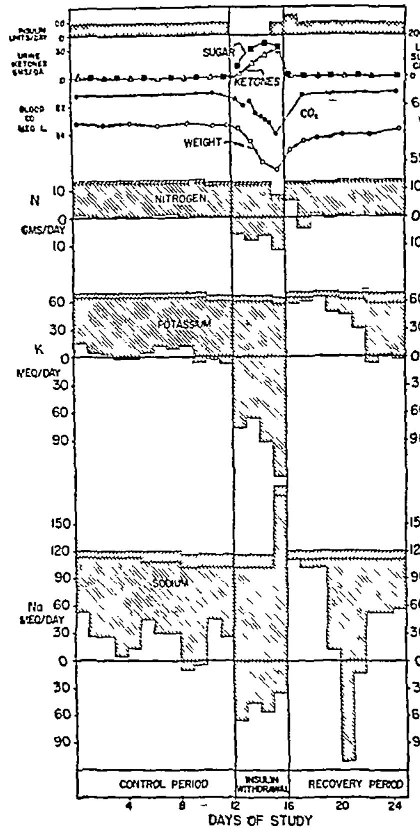

Fig 5—Metabolic study of man aged 25 with ketogenic diabetes from whom insulin was withdrawn and then reinstated Redrawn from Atchley and others [20]

Although the mode of action of insulin has been the subject of intensive research for over 30 years, its precise biochemical function is not known Recent studies by Levine and Goldstein [21] suggest that insulin is concerned with the control of the permeability of cells to glucose Whether this single mode of action can account for the multiple effect of insulin activity, that is, increased glucose oxidation, improved oxidative phosphorylation, increased lipogenesis, decreased gluconeogenesis, and increased protein anabolism, is controversial at the present time The proponents of this hypothesis argue that the greater availability of glucose within the cell would initiate reactions leading to these multiple effects Further research is necessary to establish, with certainty, the exact locus or loci of insulin action

Trauma

Selye [22] advanced the idea that many kinds of nonspecific somatic trauma could elicit a stereotyped physiological response dominated by adrenal cortical discharge There is little doubt that some variant of this general adaptation syndrome is seen in many conditions in man The evidence for such a response in starvation and in diabetic acidosis has been stated Other stresses that provide such responses include infections, burns, intoxications, cold, muscular fatigue, and trauma—both surgical and nonsurgical

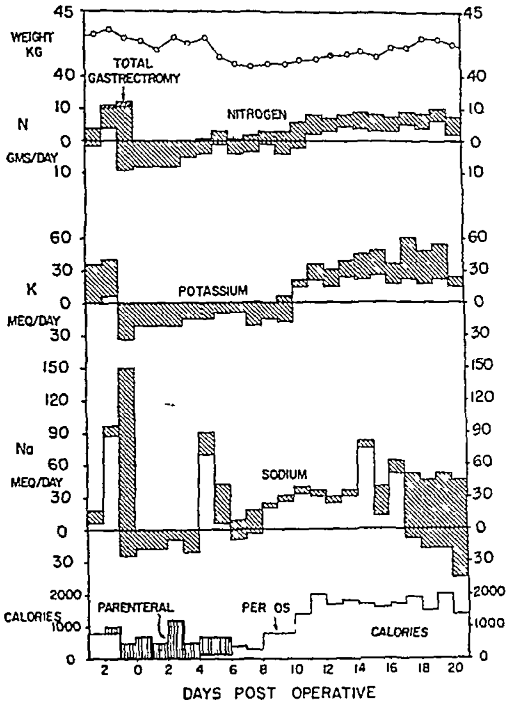

Fig 6—Metabolic study of female, aged 66, who underwent total gastrectomy Redrawn from Moore [23]

The metabolic response to surgery has been the subject of extensive studies by Moore and Ball [23] A metabolic balance study of one patient is presented in figure 6 This response followed a transthoracic total gastrectomy, splenectomy, and pancreatectomy Although nitrogen and caloric intakes were not optimum immediately after surgery, nitrogen catabolism was excessive and was not spared by glucose infusions Potassium losses and sodium retention also characterized the immediate postoperative period, and not until approximately 15 days after the operation did positive nitrogen and potassium balances ensue, followed by sodium diuresis. Whether the negative nitrogen and potassium balances would have been so large had the patient been more adequately fed during the immediate postoperative period is answered by the data of Wilkinson and associates.[24] They found that amino acids given intravenously and/or feeding in the immediate postoperative period did not improve nitrogen balance after surgery. In figure 7 is presented a study by Howard and co-workers[25] of a 24-year-old healthy white male with a fractured tibia, who, despite adequate nitrogen and caloric intakes during the post-traumatic period, showed the same extensive period of negative nitrogen balance. This phase of the response to injury is associated with an increased secretion of adrenal cortical hormones that are at least partially responsible for it.

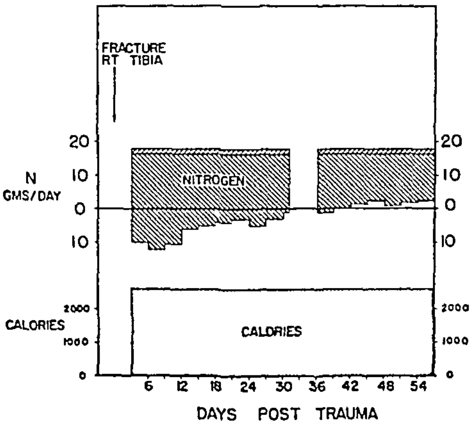

Fig 7.—Metabolic study of young man during convalescence from major skeletal fracture. Redrawn from Howard and others.[25]

Moore[23] reports that a sizable catabolism of nitrogen after injury is correlated with a prompt recovery. Nutritionally depleted patients lose less nitrogen after injury but, in general, also have a poorer anabolic phase and a less satisfactory convalescence. The diet therapy of surgical and other patients suffering trauma should be designed with endocrine responses in mind. Whenever possible, it is important to replete undernourished individuals, prior to surgery, with diets rich in protein and other essential nutrients. It is not wise, however, to force-feed during the immediate postoperative period when nutrients are not well assimilated and the organism is in a catabolic phase. It is equally important to supply calories and other nutrients in increased amounts during the period of anabolism. The increased appetite of the patient is often a guide to the time of onset of this period.

Inflammation

Since the demonstration by Hench and associates,[26] in 1950, of the anti-inflammatory properties of cortisone given in pharmacological amounts to patients with rheumatoid arthritis, tremendous strides have been made in the treatment of other nonbacterial inflammatory diseases. Rheumatic fever, lupus erythematosus, scleroderma, asthma, urticaria, exfoliative dermatitis, ulcerative colitis, lymphoma, and nephrosis are some diseases in which corticoid therapy may cause dramatic improvement.[27]

One may ask how it is possible to stimulate recovery from disease and promote health with agents that are associated with catabolic effects on metabolism. In most instances the early negative nitrogen balance, which occurs after initiation of corticoid therapy, diminishes, and a positive nitrogen balance is obtained with weight gain and actual increase in lean body mass. The antiphlogistic effect of the steroids, which counters the catabolic effect of the inflammatory process may greatly outweigh the catabolic effect of the steroids themselves. The paradox of treating a catabolic state with a catabolic agent has been considered by Roberts,[28] who has adduced evidence to show that one of the primary roles of adrenal cortical hormones is the mobilization of tissue protein. The final translocation of this protein is determined by the needs of the organism. The hepatectomized rat, for example, uses protein and amino acids derived from other labile stores for the regeneration of the liver, and the same may be true for the patient with hepatitis. In the well-nourished patient without such a need, the labilized protein may be catabolized and appear in the urine as urea. In many instances, the nitrogen balance may be shifted by increasing the intake of dietary protein. It has also been pointed out that increasing the dietary potassium may not only improve the potassium balance but may actually decrease the catabolic response of the organism to adrenal cortical hormones.

Comment

The effect of the various hormones discussed upon protein metabolism is dependent upon a number of variables that include diet, previous nutritional status, intactness of other endocrine organs, and the genetic differentiation of enzymatic patterns. Only with a knowledge of all these parameters is it possible to predict with any certainty the effect of a given hormone on protein or intermediary metabolism. Figure 8 is a diagrammatic summary of our knowledge of the action of the hormones in reference to certain pathways of intermediary metabolism. The studies to date strongly suggest that those hormones which affect protein metabolism act mainly to influence the equilibrium amino acids $\rightleftarrows$ protein

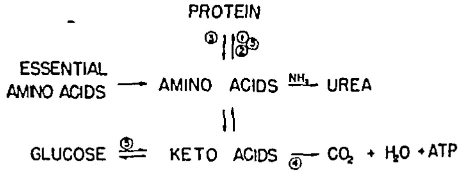

Fig 8.—Action of hormones in reference to certain pathways of intermediary metabolism. Hormones are indicated as influencing reactions shown in direction of arrow nearest number. Hormones listed are (1) growth hormone, (2) androgen, (3) adrenal corticoids, (4) thyroid hormone and (5) insulin.

Pituitary growth hormone, insulin, and androgens are protein-anabolic in over-all effect, although it appears from the data available that their specific modes of action are different Androgens appear to be anti catabolic, growth hormone proanabolic, and insulin proanabolic, although it is possible that insulin acts indirectly through its effect upon glucose uptake The specific action of thyroxin is unknown It appears to be protein-anabolic under certain conditions and protein-catabolic under others, it is certainly prometabolic The corticoids appear to be protein-catabolic but probably not amino acid-catabolic, since the net effect of corticoid action upon gluconeogenesis and urea formation is quite variable Information about these interrelationships is incomplete, but progress is being made in defining the role of the hormones in relation to cellular physiology An area for continuing intensive research is the precise function for a hormone at the molecular level

The homeostatic responses that occur in growth, starvation, and injury are governed in an important way by intricate changes in hormonal secretion The metabolic changes that occur in diabetes mellitus and after the administration of cortisone for the control of inflammatory disease involve other endocrine adjustments that must also be appreciated if optimum management is to be instituted Diet therapy bears an important relationship to optimum management in all of these states, the need for and acceptability of nutrients —not only dietary protein, but others—must be understood if optimum growth, convalescence, and health are to be obtained Endocrinology and nutrition are inseparably associated at the cellular level, their important interrelationship should be understood in the practice of medicine as well

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FOREIGN SCHOLARS IN THE MEDICAL SCIENCES

During the latter part of June a three-day conference on medical education for foreign scholars in the medical sciences was held at the University of Wisconsin The conference was financed by the China Medical Board of New York, Incorporated and cosponsored by that board the Association of American Medical Colleges, and the Conference Board of Associated Research Councils It was attended by about 50 selected foreign scholars and about 20 American educators

The three day discussions were centered around the philosophy of higher education in the United States, the education of a physician in the United States, evaluation of the applicant for medical education, the organization and objectives of a medical school, the development of the medical curriculum, and recent trends in medical education After the presentation of papers on the aforementioned topics the conferees were divided into small discussion groups in which exceedingly stimulating and valuable exchange of opinion occurred

Although the conference was designed primarily to give the foreign scholars a comprehensive insight into the philosophy and methodology of medical education in the United States, it served as an effective “two-way street in giving the guest faculty an insight into the educational philosophy and methodology of the nations represented by the guest scholars One attending this conference gained the impression that there is deep concern and interest in the problems of medical education wherever it is being conducted This is manifested by the experimental approaches that are being utilized by schools in other countries and that are designed to meet their needs in the education and training of medical personnal

Although the basic objectives of medical education in different areas of the world appear to have a universal character, special needs necessitate wide variations in emphasis and approach in curriculum content as well as in educational philosophy and methodology The pattern most satisfactory and best adaptable to our needs might fall short of meeting those of other areas One cannot participate in a conference of this type without gaining increasing respect and admiration for the fine contributions to medical education and knowledge that are being made throughout the world It emphasized the constant challenge and value of intercommunication between all nations in the important and dynamic field of medicine An experience with a group such as this also emphasizes the importance of making our best education and training experiences available to competent foreign scholars so that they may return to their homes with an appreciation of a thoroughly worthwhile experience while in the United States It is to be hoped that conference of this nature can be developed in various areas throughout the United States where groups of foreign scholars in medical sciences are sufficiently large to merit such efforts

POSTGRADUATE MEDICAL EDUCATION

The third annual list of postgraduate courses for physicians appears in this issue of THE JOURNAL (page 1773) as compiled by the Council on Medical Education and Hospitals of the American Medical Association It deserves the attention of all physicians in the United States The list should serve as a ready reference throughout the year beginning September 1, 1957 Since 1938, lists of courses for the continuation education of physicians have been published in THE JOURNAL, at first quarterly, then semiannually, and annually beginning in 1955

The present list, as was also the case last year, includes only the various kinds of primarily educational postgraduate programs that appear to be courses Although physicians also continue their education by reading of the medical literature, by consultations with colleagues, by attendance at hospital conferences, and by attendance at medical society conventions, assemblies, and meetings, the Council on Medical Education and Hospitals believes that it is most useful to the profession and to the further increase in quality of the courses themselves if the annual listing concentrates on the more formal course type of postgraduate medical education Lists of medical society conventions, assemblies, and meetings have for some time been published monthly elsewhere in THE JOURNAL

It is important to note that, unlike such other lists as those of medical schools, internships, and residencies published annually by the Council on Medical Education and Hospitals, the lists of postgraduate courses are not based upon survey or inspection and thus do not represent approval by their inclusion in the list nor disapproval by omission from the list The list is published on the basis of replies to inquiries made to *the medical schools, hospitals, and* medical societies in the United States Every effort is made to make the list as complete as possible in order to provide a single reference for physicians who wish to continue their education It is probable that the educational value of the courses varies considerably

The Council on Medical Education and Hospitals has become increasingly concerned with the whole field of postgraduate medical education because it involves, or should involve, all of the medical profession throughout the 40 or more years of practice of its members The field has been extensively and carefully studied by the Council More than a year ago, to secure broad-based recommendations for a program of action the Council could take to be of assistance in the further development of postgraduate medical education, an *ad hoc* Advisory Committee for Postgraduate Medical Education was appointed, it is still active It consists of some of the leaders in medical education from the viewpoint of medical schools, of hospitals, and of medical societies, with the viewpoints of private general practice and of specialty practice also represented The advisory committee was requested to study the field and its problems and to recommend a program through which the Council can be of assistance The beneficial influence of the Council on Medical Education and Hospitals in undergraduate and graduate medical education is generally recognized It was thought that the Council might have an equally effective influence, in cooperation with the other interested organizations, in the important postgraduate phase of medical education

Such a long-range program is being developed Although continuation education has some unique features as compared with undergraduate and graduate medical education, the advisory committee and the Council believe that the experience gained from the growth of undergraduate and graduate medical education to its present high level of effectiveness can be applied to education in the postgraduate period Certain common denominators of medical education discovered during the growth of undergraduate and graduate medical education can be applied fully to postgraduate medical education to serve as a guide to those sponsoring the more formal courses and other programs A concomitant initial approach was the development of a statement of objectives for this field of medical education, on the assumption that a common purpose generally agreed upon can provide a useful focus for activities in this field Therefore, the first task which the advisory committee undertook was the development of a guide that included a statement of objectives as well as of basic principles regarding postgraduate medical education programs This guide was endorsed by the Council and, in June, 1957, was adopted by the House of Delegates of the American Medical Association for publication and general distribution It has been mailed to those known to be interested and active sponsors in this field The guide is available upon request to the Council on Medical Education and Hospitals of the American Medical Association

Another part of the over-all program that the advisory committee recommended is that the Council increase its activities as a national center of information on postgraduate programs Toward the accomplishment of this, it seemed desirable that all information on postgraduate courses and related activities channel through the Council offices The Editor of THE JOURNAL and the Council staff agreed early this year that it would be more appropriate and useful for all notices of postgraduate courses to come through the Council offices than for notices supplementary to the annual list to be published independently in the Medical News section of THE JOURNAL It is hoped that such publication of supplementary notices under the Council heading is an interim measure only, becoming unnecessary when all courses are planned far enough in advance for inclusion in the annual list It should be noted that one of the basic principles in the guide for postgraduate medical education programs is that "the curriculum of any postgraduate medical education program should be the result of thoughtful planning well in advance of the date scheduled for the beginning of the program The value of a postgraduate program depends to a considerable extent on the amount of thoughtful planning that occurred months in advance of its beginning "

Before the guide was submitted to the House of Delegates of this Association, various organizations were shown copies of preliminary drafts and their suggestions were solicited, in order that all those groups who are thoughtfully concerned with post graduate medical education can proceed in a concerted manner, as well as to tap their resources of experience These organizations include the Association of American Medical Colleges, the American Academy of General Practice, the American College of Physicians, the American College of Surgeons, and the Advisory Board for Medical Specialties It was not intended that these organizations approve the guide before it was approved by the parent organization, the House of Delegates of the American Medical Association It was considered important that the major interested groups have an informal opportunity to participate in its formulation As with all other guides and essentials published by the American Medical Association, it is expected that this guide will undergo evolution and revision

ORGANIZATION SECTION

REPORT OF THE SECTIONS OF THE SCIENTIFIC ASSEMBLY

NEW YORK MEETING, JUNE 3-7, 1957

SECTION ON ANESTHESIOLOGY

The Section on Anesthesiology met on Wednesday and Thursday morning June 5 and 6, in the Terrace Room of the Plaza Hotel, and on Wednesday afternoon, June 5, met jointly with the Section on Diseases of the Chest in the Tudor Room of the Henry Hudson Hotel

Dr Scott M Smith, Chairman, Salt Lake City, presided over the meeting on Wednesday morning, and Dr Richard H Barrett, Vice-Chairman, Hanover, N H, presided on Thursday morning Dr John F Briggs, St Paul, Chairman of the Section on Diseases of the Chest, presided over the joint meeting on Wednesday afternoon The Scientific Program was presented as listed in the Official Program with the exception of one discussor, Dr Paul H Lorhan, Kansas City, Kan, who was ill and unable to attend

At a business meeting held on Wednesday, June 5, the Section voted to establish the office of Secretary-Elect for a term of three years, at the end of which time the Secretary-Elect will automatically assume the duties of Secretary (If the office of the Secretary is vacated prior to the normal three-year period, the Secretary-Elect will become Secretary)

At the Wednesday morning session, the Section Delegate, Dr Edward B Tuohy, Los Angeles, reported on the activities of the House of Delegates of the American Medical Association, and the Section Representative to the Scientific Exhibit, Dr Edwin L Rushia, Augusta, Ga introduced the Scientific Exhibitors

The following officers were elected Chairman, Dr Kenneth McCarthy, Toledo, Ohio, Vice-Chairman, Dr Joseph H ailing, Los Angeles, Secretary, Dr Daniel C Moore, Seattle, Secretary-Elect, Dr Vincent J Collins New York, for a term of one year since the Secretary s term expires in 1958, Delegate, Dr Edward B Tuohy, Los Angeles Representative to the Scientific Exhibit, Dr Edwin L Rushia, Augusta, Ga, and Representative to the American Board of Anesthesiology, Stuart C Cullen, Iowa City

At the end of the last session on Thursday morning, the Alternate Delegate, Dr Urban H Ebersole, Boston, reported on the actions of the House of Delegates, since the Delegate, Dr Edward B Tuohy was detained in the session of the House of Delegates

SECTION ON DERMATOLOGY

The Section on Dermatology met on Wednesday, Thursday and Friday mornings in the Tudor Room of the Henry Hudson Hotel The Chairman Dr Herbert Rattner Chicago presided

At the first session on Wednesday, the Section Delegate Dr Winfred Showman Tulsa, Okla, presented his report, outlining the actions taken at the current session of the House of Delegates, Dr Stanley Huff, Chicago presented the report of the Committee on Scientific Exhibits, Dr Beatrice Kesten, New York, reported to the Section on the activities of the American Board of Dermatology, Dr Herbert Rattner, Chicago, reported to the Section on the activities of the Editorial Board of the A M A *Archives of Dermatology,* and Dr John Downing of Boston read the report of the Committee on Industrial Dermatoses The Section established the position of Assistant Secretary for a term of one year

All papers were presented and discussed by the authors and discussors as listed in the official program

At the session on Thursday morning, the following officers were elected Chairman, Dr Earl D Osborne, Buffalo, Vice Chairman, Dr Leslie M Smith El Paso, Texas, Assistant Secretary, Dr Edward P Cawley, Charlottesville, Va The terms of office of the Secretary, Dr Clarence S Livingood, Detroit, Delegate, Dr Winfred Showman, Tulsa, Okla, and Alternate Delegate, Dr Maurice Costello, New York, do not expire until 1958 Dr J Walter Wilson, Los Angeles was appointed Representative to the American Board of Dermatology for a term of three years

At the close of the last session, the new Chairman of the Section, Dr Earl Osborne, and the Vice-Chairman, Dr Leslie Smith, were presented

SECTION ON DISEASES OF THE CHEST

Two meetings of the Section on Diseases of the Chest were held in the Tudor Room of the Henry Hudson Hotel on Tuesday and Wednesday afternoon, the second meeting being held jointly with the Section on Anesthesiology The third meeting of the Section was a joint meeting with the Section on Radiology and was held in the Ballroom of the Henry Hudson Hotel, Thursday afternoon

At the business meeting on Wednesday, June 5, the following officers were elected Chairman, Dr John F Briggs, St Paul, and Vice-Chairman, Dr M Jay Flipse, for the ensuing year, Secretary, Dr Burgess L Gordon, Philadelphia, for the ensuing four years, Delegate, Dr Hollis E Johnson, Nashville, Tenn, for the ensuing year, and Representative to the Scientific Exhibit, Dr Edwin R Levine, Chicago, for the ensuing year

SECTION ON EXPERIMENTAL MEDICINE AND THERAPEUTICS

The sessions of the Section were held in the Ballroom of the Plaza Hotel on Tuesday, Wednesday, and Thursday afternoon, June 4, 5, and 6, the Thursday afternoon session being a joint meeting with the the Section on Internal Medicine

At the business meeting on Wednesday, June 5, the following officers were elected Chairman, Dr George E Burch, New Orleans, Vice-Chairman, Dr Charles H Burnett, Chapel Hill, N C, Secretary, Dr Elliot V Newman, Nashville, Tenn, Delegate, Dr Edgar V Allen, Rochester, Minn, Representative to the Scientific Exhibit, Dr Joseph F Ross, Los Angeles

SECTION ON GASTROENTEROLOGY AND PROCTOLOGY

Meetings of the Section on Gastroenterology and Proctology were held on Wednesday, Thursday, and Friday mornings, June 5, 6, and 7, in Room 4 on the 4th floor of the Coliseum The Friday morning meeting was held jointly with the Section on Pathology and Physiology

At the business meeting on Thursday, June 6, the following officers were elected for the ensuing year Chairman, Dr Everett D Kiefer, Boston, Vice-Chairman, Dr A W Martin Marino Brooklyn, N Y, Secretary, Dr William H Dearing, Rochester, Minn, and Representatives to the Scientific Exhibit, Dr Gordon McHardy, New Orleans, and Dr Willard H Bernhoft, Buffalo The present Delegate, Dr Stuart T Ross Garden City N Y, and Alternate Delegate, Dr Garnet W Ault, Washington, D C, remain in office for one more year

SECTION ON GENERAL PRACTICE

The Section on General Practice met in the Ballroom of the Henry Hudson Hotel on Tuesday and Wednesday afternoons June 4 and 5 It held a joint meeting on Friday morning, June 7 with the Section on Urology in the Colonnades Room of the Essex House All papers and discussions were presented as listed in the official program

At the business meeting on Wednesday afternoon, June 5, the following officers were elected Chairman, Dr Charles E McArthur Olympia, Wash and Vice-Chairman, Dr S A Garlan, New York, for the ensuing year The terms of the following officers end in 1958 Secretary, Dr Eugene I Baumgartner, Oakland Md Delegate, Dr Lester D Bibler, Indianapolis, Alternate Delegate Dr Milton B Casebolt, Kansas City, Mo, and Representative to the Scientific Exhibit, Dr I Phillips Frohman, Washington, D C

SECTION ON INTERNAL MEDICINE

A luncheon meeting of the Past-Chairmen, the present Executive Committee, and the Trustees of the Billings Fund of the Section on Internal Medicine was held at the Plaza Hotel, New York, on Wednesday, June 5 Those present were Dr A Carlton Ernstene, Chairman, and Drs Walter L Bierring, Howard P Lewis, Walter L Palmer, Charles T Stone, William D Stroud Henry M Thomas Jr, and R H Kampmeier The minutes of the Executive Committee on June 12, 1956, were read and approved It was announced that Dr Richard B Capps, nominated as Alternate Delegate to the House of Delegates at the 1956 meeting was unable to accept the nomination Dr Truman G Schnabel was nominated by letter ballot to this position subsequent to the last meeting Furthermore, it was announced that Dr Robert Loeb of New York declined the Billings Lectureship Dr John R Paul of New Haven, Conn, was out of the country, and therefore Dr C Sidney Burwell of Boston was selected to give the lecture

The scientific program of the Section for 1958 was discussed It was voted to hold again a Joint Session with the Section on Experimental Medicine and Therapeutics After discussion of what might be done to improve attendance at the Section Meetings, the Secretary was instructed to explore the possibility of mailing preliminary programs to those registering for the Section on Internal Medicine in the recent previous years

The following officers were elected Chairman, Dr Albert M Snell, Palo Alto, Calif, Vice Chairman, Dr Thomas P Findley Jr, Augusta, Ga, Secretary, Dr Rudolph H Kampmeier, Nashville, Tenn and Representative to the Scientific Exhibit, Dr Henry T Ricketts, Chicago Dr Charles T Stone Sr of Galveston, Texas, and Dr Truman G Schnabel, Philadelphia, continue as Delegate and Alternate Delegate, respectively, to the House of Delegates until Jan 1, 1959 There are no vacancies on the Board of Trustees of the Billings Fund Dr Wendel M Stanley, Berkeley, Calif, was selected as the Billings Lecturer for 1958 Drs John R Paul, New Haven, Conn and George W Thorn, Boston, were chosen as first and second alternates respectively

The scientific meetings of the Section were held on Wednesday and Thursday mornings, June 5 and 6, and Thursday afternoon, June 6, in the Ballroom of the Plaza Hotel, the third session being a joint meeting with the Section on Experimental Medicine and Therapeutics All papers and discussions were presented as listed in the official program

SECTION ON LARYNGOLOGY, OTOLOGY, AND RHINOLOGY

The Section on Laryngology, Otology, and Rhinology held its sessions in the Ballroom of the Park Sheraton on Tuesday, Wednesday, and Thursday afternoon, June 4, 5, and 6 Dr Kenneth L Craft Indianapolis, Vice-Chairman of the Section, presided in the absence of the Chairman, Dr Gordon D Hoople of Syracuse N Y, who was ill and unable to attend the meeting It was voted to send Dr Hoople regrets of his illness and hopes for his speedy recovery The Secretary of the Section, Dr Hugh Kuhn, read the Chairman's address All other papers were read and discussed as presented in the Official Program

The Section voted that any funds now in the possession of the Section or which may come into the possession of the Section be managed by the current Chairman, Vice-Chairman and Secretary Dr Walter Heck Representative to the Scientific Exhibit was given a vote of thanks for organizing the excellent scientific exhibits for the Section The Chairman called attention to the honors given three exhibits in the Section

The following officers were elected Chairman, Dr Alden Miller Los Angeles Vice-Chairman Dr Lester Brown Atlanta, Ga, and Representative to the Scientific Exhibit, Dr Walter E Heck, San Francisco for the ensuing year The Secretary Dr Hugh A Kuhn, Hammond, Ind, was elected in 1956 for a term of three years, ending in 1959 The Delegate Dr Gordon F Harkness Davenport, Iowa, and the Alternate Delegate Dr Dean Lierle Iowa City, were elected in 1955 for two-year terms ending Dec 31, 1957

SECTION ON MILITARY MEDICINE

The three scheduled meetings of the Section on Military Medicine were held, as programmed on the afternoons of June 4 5, and 6, in Room 1, 2nd Floor, Coliseum All authors and discussants were present and appeared as listed in the Official Program, with the following exceptions Dr William A Altemeier, Cincinnati, notified the Secretary by telephone on the afternoon of June 3 that he would be unable to be present because he had just operated on a patient whose condition he felt precluded his leaving the city Dr Altemeier forwarded his discussion notes via air mail special delivery, to the Secretary, and the notes were read at the meeting by the Chairman of the Section, Dr Russel V Lee

At the business meeting on June 5 the following were elected to serve as officers for the Section for the 1958 meeting Chairman, Major General Silas B Hays, M C U S Army Washington D C, Vice Chairman Rear Admiral Alphonse McMahon, M C U S N R St Louis Secretary Col Charles H Bramlitt, M C U S A F Washington D C Representative to the Scientific Exhibit, Col Douglas B Kendrick M C, U S Army, Washington, D C, Delegate Dr Charles L Leedham (Colonel, M C, U S Army [Retired]) Cleveland and Alternate Delegate Dr Charles P Campbell, Hackensack, New Jersey

The following resolution was adopted RESOLVED That the Chairman of the Section appoint a committee to meet with appropriate agencies of the American Medical Association to determine the status of the military medical man in the American Medical Association The Chairman appointed the following committee for this purpose Drs I S Ravdin and R A Kern, Philadelphia, and Alphonse McMahon St Louis

SECTION ON MISCELLANEOUS TOPICS

Session on Medical Communication

A Session on Medical Communication was held in the Section on Miscellaneous Topics on Tuesday afternoon, June 4, in the Coliseum

General Elbert De Coursey, Fort Sam Houston, Texas, Chairman, presided over the session A panel discussion on methods of medical communication, including the written word, spoken word, place of the motion picture, preparation and use of lantern slides, and preparation and demonstration of scientific exhibits was presented

Session on Allergy

A Session on Allergy was held in the Section on Miscellaneous Topics on Wednesday afternoon, June 5, in the Coliseum

Drs Carl E Arbesman, Buffalo, and Ethan Allan Brown, Boston, Co-Chairmen presided over the session The papers were presented as listed in the Official Program

Session on Legal Medicine

A Session on Legal Medicine was held in the Section on Miscellaneous Topics on Thursday afternoon, June 6, in the Tudor Room of the Henry Hudson Hotel

Dr Herman A Heise, Milwaukee, Chairman, presided over the session In addition to a paper on Chemical Tests for Intoxication by Dr Heise, a Mock Trial demonstration was presented

SECTION ON NERVOUS AND MENTAL DISEASES

The Section on Nervous and Mental Diseases held three sessions on Tuesday, Wednesday, and Thursday afternoon, June 4, 5, and 6, in the Colonnades Room, Essex House Dr Karl O Von Hagen, Chairman of the Section presided All of the papers were read and discussed as listed in the Official Program

The business meeting of the Section took place on Wednesday afternoon June 5, when the following officers were elected Chairman, Dr Harold C Voris, Chicago, Vice Chairman, Dr Paul H Hoch, New York, Secretary, Dr Adolph L Sahs, Iowa City, Delegate, Dr Francis M Forster, Washington, D C, Representative to the Scientific Exhibit, Dr Benjamin Boshes, Chicago

SECTION ON OBSTETRICS AND GYNECOLOGY

The Section on Obstetrics and Gynecology met in the Ballroom of the Henry Hudson Hotel on Wednesday, Thursday, and Friday morning, June 5, 6 and 7 On Thursday it met jointly with the Section on Pediatrics The papers and panel discussions were presented as listed in the Official Program

The business meeting was held on Friday morning when the following officers were elected Chairman, Dr Woodward D Beacham, New Orleans, Vice-Chairman, Dr Curtis J Lund, Rochester, N Y, Secretary, Dr Keith P Russell, Los Angeles, Delegate Dr Ralph E Campbell, Madison, Wis, and Representative to the Scientific Exhibit, Dr Frederick H Falls, River Forest Ill

SECTION ON OPHTHALMOLOGY

The Section on Ophthalmology held its meetings on Wednesday, Thursday, and Friday morning, June 5, 6 and 7, in the Ballroom of the Park Sheraton Hotel The Chairman, Dr Algernon B Reese, New York, presided over the meetings, and all of the papers were read and discussed as listed in the Official Program

At the meeting of the executive session of the Section on Thursday, June 6, the following actions were taken

The minutes of the 1956 meeting were approved as published in THE JOURNAL of the A M A The Secretary, Dr Harold G Scheie, read a report on the present status of the Section on Ophthalmology, Dr John S McGavic read a supplementary report on the American Board of Ophthalmology, and Dr Parker Heath read the report of the Knapp Testimonial Fund Committee The reports of the following representatives from the Section were accepted

American Board of Ophthalmology
Committee on National Registry of Ophthalmic Pathology
Committee on Scientific Exhibit
Committee on Museum of Ophthalmic History
Committee on National Conference of Medical Nomenclature
American College of Surgeons Board of Governors
Committee on American Orthoptic Council
Lucian Howe Fund
Committee on Research in Ophthalmology and Blindness
Delegate to Pan American Congress of Ophthalmology
Committee on Civil Defense
Committee on Eye Banks
Delegate to House of Delegates
Program Committee

The Section voted to table the report of the representatives to the Committee on Optics and Visual Physiology for further study

Dr Charles E Jaeckle proposed that the Section extend a vote of thanks to Dr William L Benedict for all his services to the Section This was unanimously approved, and a standing ovation was extended to Dr Benedict

Committee members and Section representatives were appointed or reappointed as follows Dr M Luther Kauffman reappointed to American Committee on Optics and Visual Physiology for a period of three years, Dr Algernon B Reese reappointed to Committee on National Registry of Ophthalmic Pathology, Drs Burton Chance, Hans Barkan, and Frederick C Cordes reappointed to the Committee on National Conference of Medical Nomenclature, Dr John McLeod appointed to the Committee on American Orthoptic Council for a period of three years, Drs A D Ruedemann Sr and Michael J Hogan reappointed to the Committee for Research in Ophthalmology and Blindness, Drs William A Mann, P Robb McDonald Warren A Wilson, and Charles E Jaeckle appointed to the Committee on Civil Defense, Drs Ramon Castroviejo and Phinizy Calhoun appointed to the Committee on Eye Banks Drs Alson E Braley, Ralph W Danielson, George M Haik Wendall C Irvine, John L Matthews, W Howard Morrison C Wilbur Rucker, and Frederick H Theodore reappointed to the Program Committee for a period of three years, Dr James H Allen reappointed as delegate to Pan American Congress of Ophthalmology, and Drs Derrick Vail and W Guernsey Frey as Delegate and Alternate Delegate, respectively, to the International Federation of Ophthalmological Societies

The Section nominated three members Drs A D Ruedemann Sr, S Rodman Irvine, and Webb P Chamberlain Jr for selection of one to serve on the Board of Governors of the American College of Surgeons for the term 1958 to 1961, and nominated three members, Drs Arthur Gerard DeVoe, Kenneth L Roper, and Angus L MacLean, for selection of one by the Board of Regents to serve on the Advisory Council for Ophthalmology, American College of Surgeons

The Executive Committee recommended the adoption of a report submitted by the senior trustee of the Herman Knapp Fund, Parker Heath, that the present number of trustees be increased to three members, the existing two members to elect the third This was adopted by the Section

The Nominating Committee submitted the name of Dr John McGavic to be representative to the American Board of Ophthalmology for a four-year term from 1957 to 1961 This was approved by the Section

Members of the Committee on Award of Knapp Medal were elected as follows Drs Frederick A Davis Chairman, C Wilbur Rucker, and Phinizy Calhoun

The following officers of the Section were elected Chairman Dr Dohrmann K Pischel, San Francisco and Vice-Chairman Dr Ralph W Danielson, Denver for the ensuing year Secretary Dr Harold G Scheie Philadelphia for a three year term, Delegate, Dr Ralph O Rychener Memphis, and Alternate Delegate, Dr Harvey E Thorpe, Pittsburgh, for a two-year term beginning in January, 1957

The Prize in Ophthalmology was awarded in absentia to Dr William L Benedict Rochester Minn, by the Chairman, Dr Reese

The Knapp Medal was awarded to Drs Goodwin Breinin and Moldaver of New York Dr Harold Falls presented the award to the senior author, Dr Breinin

At the executive session on Friday, June 7, Dr Ralph O Rychener Memphis, reported on the actions of the House of Delegates, and Dr Frank W. Newell reported on the Scientific Exhibit The $250 prize for the best exhibit was awarded to Dr David Volk of Western Reserve University School of Medicine, Cleveland, for his exhibit on Conoid Ophthalmic Lenses An Original Development in Subnormal Vision Aids Dr Newell reported that this exhibit also received a Certificate of Merit from the Committee on Awards of the Council on Scientific Assembly and that a Certificate of Merit was also awarded to the exhibit on Precancerous Melanosis of the Conjunctiva by Drs Algernon B Reese and Bradley R Straatsma of the Institute of Ophthalmology

SECTION ON ORTHOPEDIC SURGERY

The meetings of the Section on Orthopedic Surgery were held on Wednesday, Thursday, and Friday, June 5 6, and 7 in the Coliseum On Friday morning the Section met jointly with the Section on Physical Medicine

At the business meeting on Thursday morning, the Section voted to establish the position of Assistant Secretary The following officers were elected Chairman, Dr Frederick R Thompson New York, Vice-Chairman, Dr Lenox Baker, Durham N C, Secretary Dr H Herman Young Rochester, Minn Assistant Secretary, Dr J Vernon Luck Los Angeles, Delegate Dr H Relton McCarroll St Louis, and Representative to the Scientific Exhibit, Dr James I Kendrick, Cleveland

SECTION ON PATHOLOGY AND PHYSIOLOGY

The meetings of the Section on Pathology and Physiology were held on Wednesday Thursday, and Friday mornings, June 5, 6, and 7, in the Coliseum, the last meeting being a joint one with the Section on Gastroenterology and Proctology

At the business meeting on Thursday, the following officers were elected Chairman, Dr Edwin F Hirsch, Chicago, Vice-Chairman Dr Thomas M Peery, Washington, D C, Secretary Dr Hugh A Edmondson, Los Angeles, Delegate, Dr Lall G Montgomery, Muncie, Ind and Representative to the Scientific Exhibit, Dr Samuel A Levinson, Chicago

SECTION ON PEDIATRICS

The Section on Pediatrics held meetings on Tuesday and Wednesday afternoons June 4 and 5 in the Terrace Room of the Plaza Hotel The Tuesday session was a joint meeting with the Section on Radiology On Thursday morning it met jointly with the Section on Obstetrics and Gynecology in the Ballroom of the Henry Hudson Hotel

At the business meeting on June 5, the following officers were elected Chairman, Dr George M Wheatley, New York Vice-Chairman, Dr Harry F Dietrich Beverly Hills Calif, Secretary, Dr Wyman C C Cole Sr, Detroit, Delegate, Dr Woodruff L Crawford Rockford, Ill, and Representative to the Scientific Exhibit, Dr F Thomas Mitchell Memphis Tenn

SECTION ON PHYSICAL MEDICINE

The meetings of the Section on Physical Medicine were held on Wednesday and Thursday morning, June 5 and 6, in the Forum Room, the Park Sheraton Hotel, and on Friday morning, June 7, jointly with the Section on Orthopedic Surgery in the Coliseum The Chairman Dr Louis B Newman, presided and all papers were read and discussed as listed in the Official Program

At the business meeting on Thursday the following officers were elected Chairman, Dr Miland E Knapp Minneapolis, Vice-Chairman, Dr Arthur L Watkins, Boston, Secretary Dr Earl C Elkins, Rochester, Minn, Delegate, Dr Walter J Zeiter Cleveland, and Representative to the Scientific Exhibit, Dr Harold Dinken, Denver

SECTION ON PREVENTIVE MEDICINE

The Section on Preventive Medicine met on Wednesday, Thursday, and Friday morning, June 5 6, and 7, in the Coliseum On Wednesday morning, the Section met jointly with the American Academy of Occupational Medicine, on Thursday morning with the American Association of Public Health Physicians, and on Friday morning with the Aero Medical Association

The following officers were elected Chairman, Dr Bruce Underwood, Washington, D C Vice-Chairman, Dr Robert A Kehoe, Cincinnati Secretary, Dr Frank Princi, Cincinnati, Delegate Dr Rutherford T Johnstone, Los Angeles, and Representative to the Scientific Exhibit Dr Paul A Davis, Akron, Ohio

SECTION ON RADIOLOGY

The Section on Radiology held its meetings on Tuesday afternoon, June 4, jointly with the Section on Pediatrics in the Terrace Room, Plaza Hotel, on Wednesday afternoon, June 5, in the Coliseum, and on Thursday afternoon, June 6, jointly with the Section on Diseases of the Chest in the Ballroom of the Henry Hudson Hotel

All papers and discussions were presented as listed in the Official Program, with the exception of the discussion of the paper by Dr George Cooper Jr Dr McLemore Birdsong of Charlottesville, Va, was scheduled to discuss the paper, but he was ill and could not attend the meeting

At the business meeting on Wednesday June 5, the following officers were elected Chairman, Dr Wendell G Scott, St Louis, Vice-Chairman, Dr William W Bryan, Atlanta, Ga, and Representative to the Scientific Exhibit, Dr Richard H Chamberlain, Philadelphia for the ensuing year, Secretary, Dr Traian Leucutia, Detroit, for a three-year term, Delegate Dr Eugene P Pendergrass, Philadelphia, and Alternate Delegate, Dr Earl R Miller, San Francisco, for a two-year term

SECTION ON SURGERY, GENERAL AND ABDOMINAL

The Section on Surgery, General and Abdominal, held its meetings on Tuesday, Wednesday, and Thursday afternoon, June 4, 5, and 6, in the Coliseum The papers and discussions were presented as listed in the Official Program, with the exception of the paper by Dr Ernest E Arnheim, New York Unfortunately he was in an automobile accident enroute to the meeting

At the business meeting on Wednesday, the following officers were elected Chairman, Dr Frank L Gerbode, San Francisco, Vice-Chairman Dr Charles G Child III Boston, Secretary, Dr Gustaf E Lindskog, New Haven Conn, Delegate, Dr Grover C Penberthy, Detroit, Representative to the Scientific Exhibit Dr John H Mulholland, New York, all for the ensuing year Dr Robert M Zollinger, Columbus Ohio, was elected to membership on the American Board of Surgery, and Dr Robert R Shaw, Dallas, Texas, to membership on the American Board of Thoracic Surgery for six-year terms

SECTION ON UROLOGY

The Section on Urology met on Wednesday Thursday, and Friday morning, June 5, 6 and 7, in the Colonnades Room of the Essex House the session on Friday being a joint meeting with the Section on General Practice All of the papers and discussions were presented as listed in the Official Program

The John H Morrissey award was presented to Drs Sam G Jameson James O Cooper, and J Schuler McKinney, El Dorado, Ark, for their exhibit on Pediatric Urology

At the business meeting on Thursday, the Section voted to establish the position of Assistant Secretary and Assistant Representative to the Scientific Exhibit The following officers were elected Chairman, Dr Roger W Barnes Los Angeles, Vice-

Chairman, Dr Dean Parker, Seattle, Secretary, Dr Thomas A Morrissey, New York Assistant Secretary, Dr Robert Lich, Louisville, Ky, for the ensuing year, Delegate, Dr Jay J Crane, Los Angeles, Alternate Delegate, Dr Earl E Ewert, Boston, and Representative to the Scientific Exhibit, Dr Milton M Coplan Miami, Fla, for two years, and Dr E F Poutasse, Cleveland, as Assistant Representative to the Scientific Exhibit for the ensuing year

SCOUTS JOIN IN WAR ON POISONINGS

Educating the public on the need for preventing accidental poisonings can be a responsibility shared by physicians, hospitals, industry, and local citizens In recent months, countless poison control centers have sprung up throughout the country A good sign in the prevention of poisonings is the fact that persons other than physicians have become interested in promoting these projects

To publicize the educational function of its newly opened poison information center, the Los Angeles Childrens Hospital teamed up with Boy Scouts from this area and the Union Oil Company of California in presenting an exhibit at the annual Scout-o-Rama held on June 8, in the Los Angeles Memorial Coliseum Staffed by Mrs Claire Barton, a registered nurse in charge of the center, and Scout Troop number 86, the exhibit stressed three important messages prevention recognition of poisonous substances, and instructions on what to do when poison has been orally ingested A pamphlet also was distributed to 6,500 persons emphasizing the common household poisons, adequate prevention, and the importance of contacting a physician before using an antidote Nearly 75,000 parents and friends of Scouts attended the Scout-o-Rama

Pointing out the danger of poisoning from common household products such as fingernail polish, aspirin, and perfumes, are members of Troop 86 of the Los Angeles Boy Scouts at an exhibit on poison information center during Scout-o-Rama which took place on June 8 at the Los Angeles Memorial Coliseum

This program is in line with a recent stepped-up activity of the A M A Committee on Toxicology, which has been investigating various means of improving public education on chemical safety The Committee's exhibit on accidental poisonings is being shown at a number of state and county health fairs Also available from the Association is a radio transcription on accidental poisonings for use over local radio stations

A M A ACTS TO COMBAT INFLUENZA EPIDEMIC

The American Medical Association has launched a nationwide preparedness program to combat a possible outbreak of Asiatic influenza in the United States Working closely with Surgeon General Leroy E Burney and the U S Public Health Service in Washington, D C, the A M A has approved a plan which will alert the nation's practicing physicians to the dangers of a possible flu outbreak

"The epidemic may never strike in this country," reports Dr David B Allman, Atlantic City, N J, A M A President, "but the American Medical Association is anxious to have practicing physicians mobilized and alerted in case an outbreak does occur Thousands of persons have been stricken with the disease in the Far East during the last few weeks and it is only good medicine to deal in probabilities now when we have the time In that way, the American people will be best served from a medical standpoint" Dr Allman stresses the fact that there is no immediate cause for alarm

The A M A Board of Trustees has authorized a special A M A Committee on Influenza to handle the project Chairman of the Committee is Dr Harold C Lueth, of Evanston, Ill, who has been serving for some time as Chairman of the A M A Committee on Civil Defense The Committee on Influenza plans to "Inform all physicians, through state and county medical societies, on how to deal with any Asiatic influenza epidemic, urge state and county medical societies to prepare and develop stand-by programs and plans to cope with any epidemic should it occur, formulate plans at the national level to utilize all medical personnel, regardless of type of practice, in time of an influenza emergency, and coordinate state and local programs with public health agencies and health departments"

The A M A and the U S Public Health Service plan to carry on a cooperative public educational program with the help of newspapers and television and radio stations The public will be given information about the particular virus—type A Far East strain—which causes the disease and how best to treat it when it strikes The influenza caused by the new virus has been relatively mild, marked by a three-to four day period of fever and other typical symptoms of influenza Several pharmaceutical manufacturers are now producing a vaccine to combat the Far East strain No verified deaths from the disease have been reported in the United States but it is estimated that the attack rate would run between 15 and 20% of the population of any city where the disease reached epidemic proportions

Postgraduate Courses for Physicians

Compiled by the Council on Medical Education and Hospitals for the Period Sept 1, 1957, to Aug 31, 1958

The data in the following list of postgraduate courses have been compiled by the staff under the supervision of Dr Glen R Shepherd, Assistant Secretary of the Council on Medical Education and Hospitals, with the clerical assistance of Miss Eileen O Brien The Council desires to express appreciation to the officers of the medical schools hospitals and medical societies who have cooperated in furnishing the information essential to the preparation of this report

Edward L Turner, M.D , Secretary
Council on Medical Education and Hospitals

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INTRODUCTION

The third annual listing of postgraduate courses for physicians appears in the following pages of THE JOURNAL This listing is for the period Sept 1, 1957, to Aug 31, 1958 The annual lists replace the semiannual lists that appeared previously

Postgraduate medical education courses consist of planned activities for doctors of medicine intended to refresh practicing physicians in the various aspects of their basic medical education, to provide information on new developments in medicine, and to stimulate further educational efforts by the participants Such courses are not designed to provide the lengthy intensive education required for specialist training and thus they may not lead either to credit toward graduate degrees or to specialty board certification These are in the field of graduate medical education and usually consist of residency training or fellowships Postgraduate courses are shorter than graduate education programs

The Council on Medical Education and Hospitals has studied the field of postgraduate medical education for several years For more than a year, its *ad hoc* Advisory Committee on Postgraduate Medical Education has studied ways in which the Council can be of greatest assistance in the further development of this part of medical education As a first step in such a course of action recommended by the Advisory Committee and endorsed by the Council, the House of Delegates of the American Medical Association adopted in June, 1957, a document entitled A Guide Regarding Objectives and Basic Principles of Postgraduate Medical Education Programs ' It should be of interest to all who are actively interested in this field A copy may be obtained on request to the Council on Medical Education and Hospitals, American Medical Association, 535 N Dearborn St , Chicago 10

This list of postgraduate courses was prepared from the unappraised and unevaluated replies to Council questionnaires by American medical schools, the hospitals having approved internship and residency training programs, and the various national, state, and specialty medical societies This list is printed simply to provide for those physicians seeking postgraduate courses a point of departure through which further information can be obtained by writing to the institution or organization listed under Location Such inquiries should be made before traveling to any course listed, because dates, time arrangements, and fees are subject to change Courses for which there is insufficient registration may be canceled Such inquiry of the sponsor is especially urged about courses scheduled for 1958, on which final information may not have been available to the sponsor at the time this list was prepared

Though the educational values of medical society meetings and conventions as well as hospital staff and departmental meetings can be very real and worthwhile, such meetings are not usually here listed as postgraduate courses Lists of society meetings are to be found monthly elsewhere in THE JOURNAL

Many of the courses listed have co sponsors to whom specific credit cannot be given because of space limitations It is expected that the institution or organization sponsoring the course has provided such co sponsor recognition to its registrants, for such organizations as the American and state heart associations, the American and state cancer societies, the National Foundation for Infantile Paralysis and its state chapters, the academies of general practice, other medical societies, and the various state boards of health are active and important in the field of postgraduate medical education

In the following list under each category, the order of arrangement of the courses is alphabetically first by states, second by cities within states third by the institutions and organizations within the cities, and last by date of course where several are offered by the same institution or organization

Although the list may indicate that a course is designed primarily for specialists in that category, many such courses are open to any physician so specific inquiry should be made of the institution listed

One of the categories in this list has a special use in addition to its usual denotation In the General Practice category are listed those courses having subjects embracing several fields, such as a course on the management of mass casualties or a course on both pediatrics and obstetrics

KEY

Designed
G—Primarily for physicians in general practice and part time specialty practice
S—Primarily for physicians in full time specialty practice
B—For both of above

Type
A—Time by arrangement
BC—Brief course less than five days regardless of hours per day
BCI—Brief course intermittent
SC—Short course five or more days
SCI—Short course intermittent
CC—Circuit course (same course given at different locations)
MT—Medical traineeship*
HS(TV)—Home study by television
HS(R)—Home study by radio
HS(AV)—Home study by audiovisual kit
HS(C)—Home study by correspondence or assigned reading
O—Other

Time Arrangement
C—Continuous or concentrated (e g as every day for five days)
I—Intermittent (e g every Thursday for six weeks)

Methods of Instruction
AV—Audiovisual aids (movies slides models)
Cad—Cadaver demonstration or dissection
Dem—Demonstration other than of patients
EPP—Enrollee performs procedure
O—Open questions
Lab—Laboratory work
Lec—Lecture
LC—Live clinic
Pan—Panel
Pt Dem—Patient demonstration
Sem—Seminar
Sur—Operative surgery
TV—Television
WR—Ward rounds
MT—Medical traineeship*

* Medical traineeship is a residency type experience in hospital clinic or school with participation in residents conferences and ward rounds but usually without patient responsibility This specially arranged experience usually lasts from two weeks to less than a year Neither housing nor formal credit is provided *Traineeships* usually do not involve night or emergency room duty

ALLERGY
(See also Pediatrics)

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Allergy and Related Conditions	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SCI	Lab Pt Dem LC WR Lec O EPP	50	10/ 2/57 3/19/58	12/ 4/57	I 10 sessions 5 hr weekly Wednesdays	125
Personal Course in Allergy	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SC	Lab Pt Dem LC WR Lec O EPP	140	1st Monday of each mo	Saturday of 4th wk	C 24 days	200
Personal Course in Allergy	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SC	Lab Pt Dem LC WR Lec O AV EPP	500	Arranged		C 6 mo full time	500
Allergy	University of Michigan Medical School Department of Postgraduate Medicine University Hospital Room 1610 Ann Arbor Mich	B	SC	Pt Dem LC Lec AV	30	4/28/58	5/ 2/58	C 5 days	50
Allergy Conference	University of Nebraska College of Medicine 42nd and Dewey Omaha	G	BC	Sem Lec Pan O AV	12	5/ 8/58	5/ 9/58	C 2 days	10 per day
Medicine PM68	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Montefiore Hospital New York 67	G	SCI	LC Lec	26	9/12/57	12/19/57	I 13 sessions 2 hr weekly Thursdays	50
Allergy Fundamentals	New York Medical College Flower and Fifth Ave Hospitals Fifth Ave and 106th St New York	G	SCI	LC WR Sem Lec	24	Arranged		I 8 sessions 3 hr weekly, Tuesdays	50
Allergy	New York Polyclinic Hospital 345 W 50th St New York	G	SCI	Lab Pt Dem LC Lec	16	Arranged		I 8 sessions 2 hr twice weekly Mondays Fridays	50
546-A Allergy	New York University Post-Graduate Medical School 550 First Ave New York	G	SC	Lab Pt Dem Lec	105	10/14/57	11/ 1/57	C 15 days	250
547 A Refresher Course in Allergic Conditions	New York University Post Graduate Medical School 550 First Ave New York	G	BC	Pt Dem Lec	21	3/24/58	3/26/58	C 3 days	55
545-A Allergy	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Pt Dem Lec	14	4/11/58	5/23/58	I 7 sessions 2 hr weekly Fridays	45
Modern Concepts and Management of Allergic Diseases	Roosevelt Hospital The Institute of Allergy 428 W 59th St New York 19	G	SC	Lab Pt Dem LC WR Sem Lec Pan O AV EPP	80	5/12/58	5/23/58	C 10 days	175
Clinical Allergy	University of Pennsylvania Graduate School of Medicine 237 Medical Lab Bldg Philadelphia	G	SCI	Lec AV	18	9/20/57	1/23/58	I 18 sessions 1 hr weekly Thursdays	20
American Academy of Allergy Postgraduate Course	The American Academy of Allergy 208 E Wisconsin Ave Milwaukee course at The Bellevue Stratford Hotel Philadelphia	B	BC	Sem Lec Pan O AV TV	Unknown	2/ 1/58	2/ 2/58	C 2 days	Unknown
Clinical Allergy	United States Veterans Hospital Oakland University Dr Pittsburgh	G	SC	Lab Pt Dem LC WR Sem Lec Pan O AV EPP	40	4/ 7/58	4/12/58	C 5½ days	50

Allergy	Albert Einstein Medical Center No Division York & Tabor Rd Philadelphia	G	SCI	Pt Dem IC Sem Pan	36	10/24/57	1/30/58	I 12 sessions 3 hr weekly Thursdays	60

ANATOMY

Surgical Anatomy	University of California Medical Center Los Angeles 24	G	SCI	Lab Lec AV EPP	20	9/23/57	11/25/57	I 10 sessions 2 hr weekly Mondays	75
Surgical Anatomy—Dissection Demonstration and Lectures	College of Medical Evangelists 1720 Brooklyn Ave Los Angeles 33	G	SCI	Lab Cad Sem Lec	297	9/30/57	6/ 4/58	I 66 sessions 5 hr weekly Mondays 4 hr weekly Wednesdays	250
Surgical Anatomy—Dissection Demonstration and Lectures on Upper and Lower Extremities	College of Medical Evangelists 1720 Brooklyn Ave Los Angeles 33	G	SCI	Lab Lec Pan	117	9/30/57	1/ 8/58	I 26 sessions 5 hr weekly Mondays 4 hr weekly Wednesdays	125
Surgical—Anatomy—Demonstration and Lectures	College of Medical Evangelists 1720 Brooklyn Ave Los Angeles 33	G	SCI	Lec Pan Dem	74	10/ 2/57	6/ 4/58	I 37 sessions 2 hr weekly Wednesdays	100
Surgical Anatomy—Demonstration and Lectures on Upper and Lower Extremities	College of Medical Evangelists 1720 Brooklyn Ave Los Angeles 33	G	SCI	Dem Lec Pan	26	10/ 2/57	1/ 8/58	I 13 sessions 2 hr weekly Wednesdays	50
Surgical Anatomy—Dissection Demonstration and Lectures on Thorax Abdomen and Pelvis	College of Medical Evangelists 1720 Brooklyn Ave Los Angeles 33	G	SCI	Lab Cad Lec Pan Dem	117	1/13/58	4/16/58	I 26 sessions 5 hr weekly Mondays 4 hr weekly Wednesdays	125
Surgical Anatomy—Demonstration and Lectures on Thorax Abdomen and Pelvis	College of Medical Evangelists 1720 Brooklyn Ave Los Angeles 33	G	SCI	Dem Lec Pan	26	1/15/58	4/16/58	I 13 sessions 2 hr weekly Wednesdays	50
Surgical Anatomy—Dissection Demonstration and Lectures on Head and Neck	College of Medical Evangelists 1720 Brooklyn Ave Los Angeles 33	G	SCI	Lab Cad Lec Pan Dem	63	4/21/58	6/ 4/58	I 14 sessions 5 hr weekly Mondays 4 hr weekly Wednesdays	75
Surgical Anatomy—Demonstration and Lectures on Head and Neck	College of Medical Evangelists 1720 Brooklyn Ave Los Angeles 33	G	SCI	Dem Lec Pan	22	4/23/58	6/ 4/58	I 11 sessions 2 hr weekly Wednesdays (Mondays 5/12 through 6/2/58)	35
Gross and Applied Anatomy	San Diego County General Hospital North End of Front St San Diego 3 Calif	S	SCI	Lab Lec O AV	32	9/57	12/57	I 16 sessions 2 hr weekly Wednesdays	Nil
Surgical Anatomy	University of Colorado School of Medicine 4200 E Ninth Ave Denver 20	B	SC	Lab Lec	Unknown	3/58	6/58	C 3 mo	Unknown
Anatomy 201 Special Dissections in Anatomy for Surgeons	Assistant Dean of Postgraduate Medical Education Yale University School of Medicine 333 Cedar St New Haven Conn	Surgery and Surgical specialties	SCI	Lab	Unknown	Arranged (preferably summer)		Arranged	Arranged
Anatomy 202 Demonstrations in Anatomy for Surgeons	Assistant Dean of Postgraduate Medical Education Yale University School of Medicine 333 Cedar St New Haven Conn	Surgery and Surgery specialties	SCI	Lab AV	about 50	9/57	5/58	I 30 sessions 1 evening weekly	175
Surgical Anatomy	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SCI	Lab Pt Dem Sur Lec O	20	9/19/57 3/20/58	11/21/57	I 10 sessions 2 hr weekly Thursdays	125
Surgical Anatomy on the Cadaver and Clinical Surgery	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SC	Lab Pt Dem IC WR Sur Lec O AV	100	9/30/57 3/10/58 6/10/58	10/12/57	C 13 days	150
Dissection of Lower Extremity for Orthopedic Surgeons	Indiana University School of Medicine 1100 W Michigan St Indianapolis	S	SCI	Lab Lec O AV EPP	56	Arranged in winter		I 14 sessions 4 hr weekly Thursdays	75
Dissection of Spine for Orthopedic Surgeons	Indiana University School of Medicine 1100 W Michigan St Indianapolis	S	SCI	Lab Lec O AV EPP	56	Arranged in spring		I 14 sessions 4 hr weekly Thursdays	75
Dissection of Upper Extremity for Orthopedic Surgeons	Indiana University School of Medicine 1100 W Michigan St Indianapolis	S	SCI	Lab Lec O AV EPP	[illegible]	Arranged in fall		I 14 sessions 4 hr weekly Thursdays	75
Dissection of Male Abdomino pelvis	Indiana University School of Medicine 1100 W Michigan St Indianapolis	S in G U and Surg	SCI	Lab Lec O AV EPP	60	Arranged in fall		I 15 sessions 4 hr twice weekly Wednesdays and Thursdays	125

Key will be found on page 1774

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Surgical Anatomy on the Cadaver and Clinical Surgery	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SO	Lab Pt Dem IC WR Sur Lec O AV	100	9/30/57 3/10/58 6/16/58	10/12/57	C 13 days	150
Dissection of Lower Extremity for Orthopedic Surgeons	Indiana University School of Medicine 1100 W Michigan St Indianapolis	S	SCI	Lab Lec O AV EPP	56	Arranged in winter		I 14 sessions 4 hr weekly Thursdays	75
Dissection of Spine for Orthopedic Surgeons	Indiana University School of Medicine 1100 W Michigan St Indianapolis	S	SCI	Lab Lec O AV EPP	56	Arranged in spring		I 14 sessions 4 hr weekly Thursdays	75
Dissection of Upper Extremity for Orthopedic Surgeons	Indiana University School of Medicine 1100 W Michigan St Indianapolis	S	SCI	Lab Lec O AV EPP	56	Arranged in fall		I 14 sessions 4 hr weekly Thursdays	75
Dissection of Male Abdomino pelvis	Indiana University School of Medicine 1100 W Michigan St Indianapolis	S in G U and Surg	SCI	Lab Lec O AV EPP	60	Arranged in fall		I 15 sessions 4 hr twice weekly Wednesdays and Thursdays	125

Key will be found on page 1774

ANATOMY—Continued

Title of Course	Location	Designed For	Type	Method of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Dissection of Female Abdomino pelvis	Indiana University School of Medicine 1100 W Michigan St Indianapolis	S in Ob and Surg	SCI	Lab Lec O AV EPP	60	Arranged		I 15 sessions 4 hr twice weekly Mondays and Tuesdays	125
Embryology for Otolaryngologists	Indiana University School of Medicine 1100 W Michigan St Indianapolis	S in Otolaryngology	BCI	Lab Lec O AV	16	Arranged in fall		I 4 sessions 4 hr weekly Mondays	25
Anatomy of Head and Neck as Applied to EENT	University of Maryland School of Medicine 522 W Lombard St Baltimore 1	S	SCI	Lab Lec Pin	144	10/1/57	2/28/58	I 36 sessions 4 hr weekly Mondays Thursdays	150
Clinical Anatomy	University of Maryland School of Medicine 522 W Lombard St Baltimore 1	S	SCI	Lab Lec	90	1/28/58	5/31/58	I 30 sessions 3 hr weekly Mondays Wednesdays	1 0
General Anatomy	University of Maryland School of Medicine 522 W Lombard St Baltimore 1	S	SC or SCI by arrangement	Lab Lec Pin	Arranged	Arranged		Arranged	Varies
Surgical Anatomy	Harvard Medical School 25 Shattuck St Boston	S in Surgery	SC	Lab Lec	110	3/3/58	4/25/58	C 40 days	200
Dissection of Upper Extremity Head and Neck Correlated with Clinical Surgery	Albany Medical College 47 New Scotland Ave Albany N Y	G	SCI	Lab Lec EPP	56	9/17/57	1/14/58	I 16 sessions 3½ hr weekly Tuesdays	300
Dissection of Thorax Abdomen and Lower Extremity Correlated with Clinical Surgery	Albany Medical College 47 New Scotland Ave Albany N Y	G	SCI	Lab Cad Lec EPP	59½	1/21/58	5/13/58	I 17 sessions 3½ hr weekly Tuesdays	300
Anatomy of the Abdomen	New York Medical College Flower and Fifth Ave Hospitals Fifth Ave and 106th St New York	S	SCI	Lab	100	Arranged		I Arranged	150
Applied Anatomy of the Urogenital System	New York Medical College Flower and Fifth Ave Hospitals Fifth Ave and 106th St New York	S	SCI	Lab Lec	130	Arranged		I Arranged	300
Anatomy for the Orthopedic Surgeon	New York Medical College Flower and Fifth Ave Hospitals Fifth Ave and 106th St New York	S	SCI	Lab	100	Arranged		I Arranged	150
Anatomy of the Thorax	New York Medical College Flower and Fifth Ave Hospitals Fifth Ave and 106th St New York	S	SCI	Lab	100	Arranged		I Arranged	150
Applied Anatomy for the General Surgeon	New York Medical College Flower and Fifth Ave Hospitals Fifth Ave and 106th St New York	S	SCI	Lab Lec	200	Arranged		I Arranged	375
Applied Anatomy for the Otolaryngologist	New York Medical College Flower and Fifth Ave Hospitals Fifth Ave and 106th St New York	S	SCI	Lab Lec	150	Arranged		I Arranged	275
Applied Anatomy for the Anesthetist	New York Medical College Flower and Fifth Ave Hospitals Fifth Ave and 106th St New York	S	SCI	Lab Lec	125	Arranged		I Arranged	275
Anatomy—Surgical (a)	New York Polyclinic Hospital 345 W 50th St New York	G	SCI	S Sem Lec O AV Cad	18	Arranged on request		I 6 sessions 3 hr weekly Mondays Wednesdays Fridays	300
Anatomy—Surgical (b) or (c)	New York Polyclinic Hospital 345 W 50th St New York	G	SCI	S Sem Lec O AV EPP	12	Arranged		Arranged 6 sessions	200 (b) 300 (c)
Anatomy—Surgical (d)	New York Polyclinic Hospital 345 W 50th St New York	G	BCI	Lab Sur Sem Lec O AV EPP	6	Arranged		I 3 days Arranged 2 hr thrice weekly Mondays Wednesdays Fridays	300
111 A Surgical Anatomy of the Head and Neck	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Lab EPP	144	9/23/57	12/13/57	I 36 sessions 4 hr thrice weekly Mondays Wednesdays Fridays	100
113 A Surgical Anatomy of the Abdomen	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Lab EPP	144	9/23/57	12/13/57	I 36 sessions 4 hr thrice weekly Mondays Wednesdays Fridays	100

412 A Surgical Anatomy of the Thorax and Its Viscera	New York University Post Graduate Medical School 550 First Ave New York	G	SOI	Lab EPP	144	9/23/57	12/13/57	I 36 sessions 4 hr thrice weekly Mondays Wednesdays Fridays	100
416-A Surgical Anatomy of the Musculoskeletal System	New York University Post Graduate Medical School 550 First Ave New York	G	SOI	Lab EPP	144	3/24/58	6/13/58	I 36 sessions 4 hr thrice weekly Mondays Wednesdays Fridays	100
414 A Surgical Anatomy of the Female Pelvis	New York University Post Graduate Medical School 550 First Ave New York	G	SOI	Lab EPP	144	3/24/58	6/13/58	I 36 sessions 4 hr thrice weekly Mondays Wednesdays Fridays	100
415-A Surgical Anatomy of the Genitourinary System	New York University Post Graduate Medical School 550 First Ave New York	G	SOI	Lab EPP	144	3/24/58	6/13/58	I 36 sessions 4 hr thrice weekly Mondays Wednesdays Fridays	100
Anatomy	State University of New York Upstate Medical Center 766 Irving Ave Syracuse N Y	Unknown	Arranged	Lab Dem EPP	Arranged	Arranged		Arranged	Arranged

ANESTHESIOLOGY
(See also Anatomy)

Anesthesiology in General Practice	Lloyd Noland Hospital Fairfield Ala	G	MT or (SCI)	Pt Dem LC WR Sur Lec Pan O AV EPP	Unknown	Arranged	2 to 6 wk later	Full time or (6 hr each Thursday for 1 yr)	Varies according to time arrangement
Inhalation and Endotracheal Anesthesia	St Mary's Hospital West St Mary's Rd Tucson Ariz	G	SO	Pt Dem WR Sem EPP	Unknown	Arranged		Arranged	Nil
Anesthesiology	College of Medical Evangelists 1720 Brooklyn Ave Los Angeles 33 course at White Memorial Hospital Los Angeles 33	G	SC	LC Sem Lec	765	Arranged every 6 mo		C 120 days	350
Anesthesia	University of California at Los Angeles Medical Center Los Angeles 24	G	BO	Lec Pan O AV	15	Summer/58		C 2½ days	Unknown
Postgraduate Course in Clinical Anesthesiology	White Memorial Hospital 1720 Brooklyn Ave Los Angeles	G	MT	Pt Dem WR Sem O	Unknown	Arranged	6 mo later	Arranged	Unknown
Clinical Anesthesiology	University of Colorado Medical Center 4200 E Ninth Ave Denver 20	G	SO	Pt Dem Sur EPP	Arranged	Arranged		Arranged	125 per quarter
General Anesthesia	St Francis Hospital 114 Woodland St Hartford 5 Conn	G	SCI	Pt Dem LC Sur Lec O AV	Depends on candidate	9/16/57 1/ 1/58 3/ 1/58	Depends on candidate	I Arranged	Unknown
Course I—Regional Anesthesia	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SO	Lab Pt Dem LC Sur Lec O AV EPP	140	1st Monday of each mo	4 wk later	C 20 days	300
Course V—Inhalation and Endotracheal Anesthesia	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SO	Lab Pt Dem LC Sur Lec O AV EPP	140	1st Monday of each mo	4 wk later	C 20 days	300
Anesthesiology	Indiana University School of Medicine 1100 W Michigan St Indianapolis	G	SCI	Sem Lec Pan AV O	175	9/ 6/57	5/23/58	I 35 sessions 5 hr weekly Fridays	Arranged
Anesthesiology	Indiana University School of Medicine 1100 W Michigan St Indianapolis	G	MT	Lab Pt Dem LC WR Sem Lec Pan O AV EPP	80 160 or 230	Each Monday	Varies	Varies	100 150 or 200
Anesthesiology—Clinical Instruction	Indiana University Medical Center 1100 W Michigan St Indianapolis	G	SO or MT	Pt Dem LC WR Sur Sem Lec	Arranged	Arranged		Arranged	Nil
Anesthesia	State University of Iowa College of Medicine University Hospitals Iowa City	G	BO	Lec Pan O AV	14 16	3/18/58	3/10/58	C 2 days	30
Anesthesiology	University of Kansas Medical Center 39th and Rainbow Blvd Kansas City Ks	S	BO	Pt Dem Lec Pan O AV TV	21	4/14/58	4/10/58	C 3 days	35
Clinical Traineeship in Anesthesiology	University of Kansas Medical Center 39th and Rainbow Blvd Kansas City Ks	G	MT	LC Lec Pan O AV TV EPP	Varies	Arranged	2 wks later min	6 8 hr days weekly for at least 2 wk	50 per mo residents of Kansas 100 per mo out of state
Anesthesiology	University of Louisville School of Medicine 101 E Chestnut St Louisville Ky	G	SC	LC EPP	200-600	Arranged		C 30-90	Nil
Postgraduate Lectures in Anesthesiology—Basic Science and Clinical	Maine Medical Center 22 Bramhall St Portland Me	G	SCI	Sem Lec O AV	15	10/18/57	5/58	I 15 sessions 1 hr every other Friday	Nil

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ANESTHESIOLOGY—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Anesthesiology	Eastern Maine General Hospital 189 State St Bangor Me	G	SC or SCI	Pt Dem TC WR Sur Sem Lec Pan O AV EPP	Arranged	Arranged		Arranged	Nil
Postgraduate Anesthesiology	St Vincent Hospital 25 Winthrop St Worcester Mass	C	MI	Pt Dem WR Lec O AV FPP	44 weekly	Arranged		Arranged	Nil
Cardiac Resuscitation Prevention and Treatment of Cardiac Arrest	St Michael s Hospital 306 High St Newark N J	C + dentists nurse anesthetists	BC	Lab Sur Lec Pan O AV	7	10/16/57 repeated each mo until 6/21/58	10/16/57	C 1 day	25
Postgraduate Refresher Course	Albany Hospital New Scotland Ave Albany N Y	C	SC	Pt Dem Sem FPP	960	Arranged		C 120 days	100
Anesthesia	University of Buffalo School of Medicine 3435 Main St Buffalo	G	SC	Pt Dem TC WR Sur Sem Lec Pan O AV EPP	39	3/24/58	3/29/58	C 6 days	75
Anesthesiology	University of Buffalo School of Medicine 3435 Main St Buffalo 14	G	SC	Pt Dem TC Lec Pan O EPP	37½	4/58	4/58	C 5 days	75
Clinical Anesthesiology	New York Medical College Flower and Fifth Ave Hospitals Fifth Ave & 106th St New York	S	SC	Pt Dem Sem Lec	Unknown	Arranged		C 3 mo full time	200
Applied Anesthesiology	New York Polyclinic Hospital 345 W 50th St New York	G	SC	Lab Pt Dem WR Lec AV	480	4/ 1/58	6/30/58	C 72 days	300
511 A Anesthesiology (For Specialists)	New York University Post Graduate Medical School 550 First Ave New York	S	SC	TC	70	Mondays Sept through June		C 10 days	150
512 A Regional Anesthesiology	New York University Post Graduate Medical School 550 First Ave New York	G	SC	Lab TC Lec EPP Cad	35	9/ 9/57 1/13/58 4/14/58	9/13/57	C 5 days	125
510-A Anesthesiology Endotracheal and Related Methods	New York University Post Graduate Medical School 550 First Ave New York	S	SC	TC Lec	35	9/30/57 1/ 6/58 3/24/58	10/ 4/57	C 5 days	100
515-A Electrocardiography for Anesthesiologists	New York University Post Graduate Medical School 550 First Ave New York	S	SC	Pt Dem Lec	35	10/ 7/57	10/11/57	C 5 days	85
Anesthesia for Part Time Anesthetists	New York State Society of Anesthesiologists 131 W 11th St New York 11 course at various hospitals throughout New York State	G	SC	Pt Dem TC WR Lec O AV	Varies	Varies		C Varies	Nil
Refresher Course in Anesthesia	Duke University Hospital Durham N C	G	BC	Pt Dem TC Sur Sem Lec Pan	20	3/20/58	3/22/58	C 3 days	25
Refresher Course in Anesthesia	Christ Hospital Cincinnati	C	SC or MI	Pt Dem LC WR Sem Lec O FPP	Arranged	Arranged		Arranged	Nil
Obstetrical Anesthesia	Mrs Adella Gilman Department of Anesthesiology Western Reserve University Hospitals 2065 Adelbert Rd Cleveland 6	G	MI including patient responsibility and night duty	Pt Dem Sem Lec O AV LPP	480	1/ 1/58 4/ 1/58	3/31/58	90 days	150
Anesthesiology	Cleveland Clinic 2020 E 93rd St Cleveland	B	O	Observation	Unknown	Arranged		Arranged	Nil
Anesthesiology	Ohio State University Columbus Ohio	G	SC or MI	Lab Pt Dem Sur Lec LPP	28 or 6 mo	Fall Spring As requested	4 days 6 mo later	4 days for SC Full time 6 mo for MI	Nil Nil
Clinical Anesthesiology	St Anthony Hospital Hawthorne and Taylor Ave Columbus Ohio	G	SC SCI or MT	Pt Dem WR Sur Sem Lec AV	Arranged	Arranged		12 to 24 sessions 2 hr weekly Tuesdays	50
Refresher Course in Anesthesiology	American Society of Anesthesiologists Inc Committee on Postgraduate Education Chairman 215 Professional Bldg Springfield Mo course at various hospitals in the City of Toledo Ohio	C	SC	Pt Dem Sur Sem O EPP	Open	As requested		Open	Nil
Refresher Course in General Anesthesia	McKesson Anesthesia Associates 2228 Ashland Ave Toledo 10 Ohio course at various Toledo hospitals	G	SC	Pt Dem TC WR Sur Lec Pan O		Arranged		C 4 wk	250
Anesthesia	Joseph M White Jr Chairman Department of Anesthesiology University Hospital 800 N E 13th Oklahoma City	G	SC	Sur Sem O	Length of time individual has available	Arranged		Arranged	Nil

Recent Advances in the Physiological Aspects of Anesthesia	Graduate School of Medicine University of Pennsylvania Philadelphia	B	BC	Sem Lec Pan O AV	Unknown	2/10/58	2/12/58	C 3 days	75
Recent Advances in Pharmacologic Aspects of Anesthesia	University of Pennsylvania Graduate School of Medicine 3600 Spruce St Philadelphia	G	BC	Lec O AV	15	2/10/58	2/12/58	C 3 days	75
Anesthesiology	University of Pittsburgh School of Medicine 3630 Terrace St Pittsburgh 13	S	SO	Sem Lec Pan AV	Unknown	6/10/58	6/14/58	C 5 days	25
Anesthesia for the General Practitioner and Part Time Anesthesiologist	Medical College of South Carolina Hospital 55 Doughty St Charleston S C	G	SC	Pt Dem LC WR Sem Lec O EPP	Minimum of 50	1/1/58	Arranged	C minimum of 7 days	Unknown
Postgraduate Refresher Course in Anesthesiology	University of Texas Postgraduate School of Medicine 213 W Avenue G Temple Tex course at Scott and White Memorial Hospital Scott Sherwood and Brindley Foundation Temple Tex	G	SC	Pt Dem WR Sur Sem Lec FPP	176	Monthly through May		C 24 days	25
Short Course or Traineeship	University of Utah Division of Postgraduate Medical Education 175 E 21st St Salt Lake City course at affiliated hospital	G	SC or MI	Pt Dem LC Sur Sem Lec Pan O AV	11 Arranged	2/58 Arranged		Continuous 6 to 8 days One day wk for 8 wk Full time 1 to several mo as arranged	50 50 per mo
Postgraduate Course in Anesthesiology	University of Virginia Hospital Charlottesville Va	C	BC	Pt Dem Sem Lec Pan O AV	1 day	7/13/58	7/13/58	C 1 day	Nil
Traineeship	Medical College of Virginia 1200 E Broad St Richmond Va	C	MI	Pt Dem WR Sem Lec FPP	Arranged	Arranged		Arranged	Nil
Regional and General Anesthesia for the General Practitioner	Tacoma General Hospital 315 South K St Tacoma 5 Wash	G	SC	Pt Dem LC WR Sur Lec AV	360	First of any mo	3 mo later	C 60 days	100
Anesthesiology	Lucien E Morris M D University of Washington School of Medicine Seattle course at University of Washington and affiliated hospitals	B	MI	Lab Pt Dem Sur Sem EPP		Arranged		Arranged	Unknown
BASIC SCIENCES									
Photomicrography	University of California Medical Center Los Angeles 24	C	SCI	Lab Lec AV	12	11/4/57	12/9/57	I 6 sessions 2 hr weekly Mondays	30
S20 Basic Science Applied Physiology	San Diego County General Hospital North end of Front St San Diego 3 Calif	S	SCI	Lec Pan O AV	16	3/58	4/58	I 8 sessions 2 hr weekly Thursdays	Nil
Review of Neuroanatomy and Neurophysiology	Department of the Army Office of the Surgeon General Education and Training Division Washington 25 D C course at Walter Reed Army Institute of Research Walter Reed Army Medical Center Washington D C	S	SO	Lab WR Sem Lec O AV	60	2/10/58	2/22/58	C 10 days	Nil
Biochemical Background of Clinical Medicine—A Basic Course	Cook County Graduate School of Medicine 707 S Wood St Chicago	C	SCI	Lec O	20	9/18/57 3/19/58	11/21/57	I 10 sessions 2 hr weekly Wednesdays	100
Histochemistry Techniques	University of Kansas Medical Center 39th and Rainbow Blvd Kansas City Ks	S	SO	Lab Lec FPP	92	6/9/58	6/21/58	C 12 days	125 75 for 1 wk
Basic Sciences as they Apply to Medicine	University of Maryland School of Medicine 522 W Lombard St Baltimore 1	C	SCI	Lec	12	1/9/58	5/29/58	I 21 sessions 2 hr weekly Wednesdays	50
Workshop on Clinical Chemistry—Cations	U S Naval Medical School National Naval Medical Center Bethesda 14 Md	S	BC	Lab Sem Lec AV	16	9/27/57	9/28/57	C 2 days	20
Basic Sciences and Their Clinical Application	University of Michigan Medical School Department of Postgraduate Medicine University Hospital Ann Arbor Mich	Primarily for residents	MI	Lab Pt Dem LC WR Lec Pan O AV	Full time	9/30/57	6/6/58	9 mo	500
Bacteriology	New York Medical College Flower and Fifth Ave Hospitals Fifth Ave and 106th St New York	C	SC	Lab Sem Lec	210	Arranged		C 60 days	100
Immunology	New York Medical College Flower and Fifth Ave Hospitals Fifth Ave and 106th St New York	G	SC	Lab Sem Lec	120	Arranged		C 30 days	50
100A Biochemistry and Physiology in Disease Laboratory Diagnosis	New York University Post Graduate Medical School 550 First Ave New York	C	SCI	Lec O AV	16	10/1/57	11/20/57	I 8 sessions 2 hr weekly Tuesdays	50
111A Clinical Physiology The Application of Basic Physiology to Diagnostic and Therapeutic Problems	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Lec Pt Dem O Dem	16	1/9/58	2/27/58	I 8 sessions 2 hr weekly Thursdays	50

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BASIC SCIENCES—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Review Course in Organic Chemistry	Mount Sinai Hospital 1800 E 105th St Cleveland	G	SO	Lec	15	1/58		C 15 days Arranged	None
Correlated Clinical Science Course	University of Pennsylvania Graduate School of Medicine 237 Medical Lab Bldg Philadelphia	B	SO	Lec	217	9/24/57	5/16/58	C 160 days	200
CARDIOVASCULAR DISEASE (See also Radiology Surgery and Electrocardiography)									
Recent Advances in the Diagnosis and Treatment of Surgical Heart Disease	City of Hope Medical Center 1500 E Duarte Rd Duarte Cal	G	SC	Pt Dem LC Lec Pan O AV	19½	3/26/58	3/28/58	C 3 days	10 per day or 25 for entire course
Pathological Physiology of the Cardiovascular System	University of California School of Medicine Los Angeles 24	G	SCI	Sem Lec O AV	20	10/ 7/57	12/ 9/57	I 10 sessions 2 hr weekly Mondays	50
873—Cardiac Resuscitation	University of Southern California School of Medicine Postgraduate Division Medical Research Building 2025 Zonal Ave Los Angeles 33	B	BC	LC Lec EPP	2	Repeated each week		C 1 day	30 for practicing physicians no fee for residents
Recent Advances in Treatment of Heart Disease	Monterey County Heart Association 1073 Cass St Monterey Cal	G	BC	Pt Dem LC Lec Pan	12	12/ 4/57	12/ 5/57	C 2 days	15
Symposium on Heart Disease	Orange County Heart Association P O Box 1704 Santa Ana Calif Course at hotel	G	BC	Lec Pan O	8-10	Spring 58		C 1 day	10
Symposium on Cardiovascular Disease	Medical Extension University of California Odd Fellows Hall Santa Rosa Cal	G	BO	Lec	9	11/13/57	11/13/57	C 1 day	12 50
Sixth Western Cardiac Conference	Office of Postgraduate Medical Education University of Colorado School of Medicine 4200 E Ninth Ave Denver 20 course at Colorado Heart Association Denver 20	B	BO	Lec Pan	24	9/ 5/57	9/ 7/57	C 3 days	15
Fifth Biennial Cardiovascular Seminar	The Miami Heart Assoc 2 S E 13th St Miami Fla course at Miami hotel	S	BC	Sem Lec Pan O AV	18	4/23/58	4/26/58	C 4 days	20
Heart Seminar	*Florida State Board of Health—Bureau of Special Health Services* P O Box 210 Jacksonville Fla course at hotel	G	BO	Sem Lec, Pan O AV	15	10/57		C 2 days	Nil
Seminar on Cardiovascular Diseases	Northeast Florida Heart Association Prudential Building 425 W Duval St Jacksonville Fla	B	BO	Pt Dem Lec Pan O AV	15	2/20/58	2/22/58	C 2½ days	10
Cardiology	Emory University School of Medicine Post graduate Division Emory University Atlanta Ga course at Grady Memorial Hospital Atlanta 3 Ga	G	SO	Unknown	40	1/13/58	1/18/58	C 5½ days	100
Ninth Annual Scientific Sessions	Georgia Heart Association Inc 1101 W Peachtree St N E Atlanta 9 Ga course at General Oglethorpe Hotel Savannah Ga	G	BC	Lec Pan O AV	10	9/13/57	9/14/57	C 2 days	*None*
Electrocardiography and Heart Disease	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SO	Lab Pt Dem LC WR Lec O AV EPP	70	10/ 7/57 3/10/58 7/ 7/58	10/19/57	C 11 days	150
Cardiovascular Disease	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SOI	Lab Pt Dem LC, WR Lec, O AV EPP	20	9/18/57	11/20/57	I 10 sessions 2 hr weekly Wednesdays	100
Diagnosis of Congenital and Acquired Malformations of the Heart in Infants and Children Roentgenology Electrocardiography, Angiocardiography and Catheterization of the Heart and Great Vessels	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SO	Lab Pt Dem LC WR Sur Lec O AV	25	11/11/57	11/23/57	C 5 days	100
Cardiac Arrhythmias	Indiana University School of Medicine 1100 W Michigan St Indianapolis	G	BO	Lec Pan O AV	16	9/23/57	9/24/57	C 2 days	20
Radiology of the Heart	Indiana University School of Medicine 1100 W Michigan St Indianapolis	G	SOI	Lec O AV	5	1/ 2/58	1/30/58	I 5 sessions 1 hr weekly Thursdays	25
Heart Symposium (7th Annual)	Indiana University School of Medicine 1100 W Michigan St. Indianapolis	G	BO	Sem Lec Pan AV	8	2/12/58	2/13/58	C 2 days	Nil

Rheumatic Heart Disease Arteriosclerotic Heart Disease Congestive Failure	Indiana University School of Medicine 1100 W Michigan St Indianapolis	G	BO	Lec Pan O AV	16	5/26/58	5/27/58	C 2 days	20
Mid West Cardiac Conference	State University of Iowa College of Medicine University Hospital Iowa City	C	BO	Lec Pan O AV	18 23	10/3/57	10/5/57	C 3 days	Nil
Clinical Traineeship in Cardiovascular Disease	University of Kansas Medical Center 39th and Rainbow Blvd Kansas City Ks	C	MI	Lab Pt Dem LC Sem Lec O AV	Approx 120	2/1/58 3/1/58	2/28/58	Approx 30 days	200
The Heart The Acute Coronary Occlusion	University of Kansas Medical Center 39th and Rainbow Blvd Kansas City Ks	G	BO	Pt Dem LC WR Sem Lec Pan O AV	14	2/24/58	2/25/58	C 2 days	30
Diseases of the Heart	University of Michigan Medical School Department of Postgraduate Medicine University Hospital Ann Arbor Mich	G	SC	Pt Dem Lec O	30	4/14/58	4/18/58	C 5 days	50
Cardiology	Tulane University School of Medicine 1430 Tulane Ave New Orleans	B	SC	Pt Dem WR Sem Lec Pan	40	12/2/57	12/6/57	C 5 days	50
Latest Advances in Cardiology	American College of Physicians 4200 Pine St Philadelphia 4 course at National Heart Institute National Institutes of Health Bethesda Md	S	SC	Lec Pan O AV	35-40	Unknown		C 5 days	30 A C P members 60 non members
Cardiology 2	Harvard Medical School Courses for Graduates 25 Shattuck St Boston course at Boston City Hospital Boston	C	SCI	Pt Dem Lec	30	11/6/57	2/ /58	I 12 sessions 3 hr weekly Wednesday mornings	75
Cardiovascular Diseases for General Physicians	Robert B Howard MD Continuation Medical Education 1342 Mayo Memorial University of Minnesota Minneapolis 14	G	BC	Lec O	15	2/6/58	2/8/58	C 3 days	30
Cardiovascular Seminar	The University of Mississippi Medical Center 2500 N State St Jackson Miss	B	BC	Pt Dem LC WR Sem Lec Pan O AV	20	4/2/58	4/5/58	C 4 days	10
Electrocardiography and Heart Diseases	University of Nebraska College of Medicine 42nd and Dewey Omaha	G	BC	WR Sem Lec Pan O AV	18	9/30/57	10/2/57	C 3 days	10 per day
Recent Advances in Cardiology	St Michael's Hospital 306 High St Newark N J	G	SCI	Lab Pt Dem LC Pan O	16	9/25/57	1/16/58	I 8 sessions 2 hr mo Wednesdays	25
New Medical and Surgical Approaches to Cardiovascular Disease	Albany Medical College 47 New Scotland Ave Albany 8 N Y	G	SCI	Pt Dem LC Sem O TV	27	1/9/58	2/13/58	I 6 sessions 4½ hr weekly Thursdays	12 a day or 60 for course
Clinical Cardiology	Albany Medical College Albany N Y course at Veterans Administration Hospital Albany N Y	G	SC	Pt Dem LC WR Sem Lec O	10	Unknown		C 5 days	60
Recent Advances in Cardiovascular Disease	University of Buffalo School of Medicine 3435 Main St Buffalo	G	BC	Pt Dem LC Sem Lec Pan O	21	12/4/57	12/6/57	C 3 days	4
Basic Cardiology	Meadowbrook Hospital Carman Ave and Bethpage Turnpike Hempstead N Y	G	SCI	Pt Dem WR Sem Lec	90	10/2/57	5/11/58	I 30 sessions 3 hr weekly Wednesdays	100
Medicine PM64 Surgical Treatment of Heart Disease	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Montefiore Hospital New York 67	G	SCI	LC Sem Lec	63	9/24/57 2/4/58	1/28/58	I 18 sessions 3½ hr weekly Tuesdays	150
Medicine PM63 Cardiology III	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Montefiore Hospital New York 67	G	SCI	Sem Lec Pt Dem WR Lab	63	9/24/57 2/4/58	1/28/58	I 18 sessions 3½ hr weekly Tuesdays	150
Medicine PM60 Cardiology I	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Montefiore Hospital New York 67	G	SCI	Lab Pt Dem LC Lec AV	90	10/3/57 2/6/58	1/30/58	I 15 sessions 6 hr weekly Thursdays	150
Medicine PM62 Cardiology II	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Montefiore Hospital New York 67	G	SCI	Lab Pt Dem LC Lec	25	10/3/57 2/6/58	1/30/58	I 15 sessions 3½ hr weekly to be arranged	150
PM29 Medicine Clinical Cardiology	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Mount Sinai Hospital New York 29	C	SCI	Pt Dem LC Lec	20	10/15/57 2/4/58	12/17/57	I 10 sessions 2 hr weekly Tuesdays	60
PM31 Medicine Advances in Cardiovascular Disease	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Mount Sinai Hospital New York 29	C	SC	Pt Dem LC Lec	20	1/27/58	2/7/58	C 10 days	75
PM18 Medicine Heart Disease and Circulatory Dynamics	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Mount Sinai Hospital New York 29	G	SCI	LC Lec	20	2/18/58	4/22/58	I 10 sessions 2 hr weekly Tuesdays	50

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BASIC SCIENCES—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Review Course in Organic Chemistry	Mount Sinai Hospital 1800 E 105th St Cleveland	G	SC	Lec	15	1/58		C 15 days Arranged	None
Correlated Clinical Science Course	University of Pennsylvania Graduate School of Medicine 237 Medical Lab Bldg Philadelphia	B	SC	Lec	216	9/24/57	5/16/58	C 160 days	200

CARDIOVASCULAR DISEASE

(See also Radiology Surgery and Electrocardiography)

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Recent Advances in the Diagnosis and Treatment of Surgical Heart Disease	City of Hope Medical Center 1500 E Duarte Rd Duarte Cal	G	SC	Pt Dem LC Lec Pan O AV	19	3/20/58	3/28/58	C 3 days	10 per day or 25 for entire course
Pathological Physiology of the Cardiovascular System	University of California School of Medicine Los Angeles 24	G	SCI	Sem Lec O AV	20	10/7/57	12/9/57	I 10 sessions 2 hr weekly Mondays	50
873—Cardiac Resuscitation	University of Southern California School of Medicine Postgraduate Division Medical Research Building 2025 Zonal Ave Los Angeles 33	B	BC	LC Lec EPP	2	Repeated each week		C 1 day	30 for practicing physicians no fee for residents
Recent Advances in Treatment of Heart Disease	Monterey County Heart Association 1073 Cass St Monterey Cal	G	BC	Pt Dem LC Lec Pan	12	12/4/57	12/5/57	C 2 days	15
Symposium on Heart Disease	Orange County Heart Association PO Box 1704 Santa Ana Calif Course at hotel	G	BC	Lec Pan O	8-10	Spring 58		C 1 day	10
Symposium on Cardiovascular Disease	Medical Extension University of California Odd Fellows Hall Santa Rosa Cal	G	BC	Lec	9	11/13/57	11/13/57	C 1 day	12 50
Sixth Western Cardiac Conference	Office of Postgraduate Medical Education University of Colorado School of Medicine 4200 E Ninth Ave Denver 20 course at Colorado Heart Association Denver 20	B	BC	Lec Pan	24	9/5/57	9/7/57	C 3 days	15
Fifth Biennial Cardiovascular Seminar	The Miami Heart Assoc 2 SE 13th St Miami Fla course at Miami hotel	S	BC	Sem Lec Pan O AV	18	4/23/58	4/26/58	C 4 days	20
Heart Seminar	Florida State Board of Health—Bureau of Special Health Services PO Box 210 Jacksonville Fla course at hotel	G	BO	Sem Lec Pan O AV	15	10/57		C 2 days	Nil
Seminar on Cardiovascular Diseases	Northeast Florida Heart Association Prudential Building 425 W Duval St Jacksonville Fla	B	BO	Pt Dem Lec Pan O AV	15	2/20/58	2/22/58	C 2½ days	10
Cardiology	Emory University School of Medicine Postgraduate Division Emory University Atlanta Ga course at Grady Memorial Hospital Atlanta 3 Ga	G	SO	Unknown	40	1/13/58	1/18/58	C 3½ days	100
Ninth Annual Scientific Sessions	Georgia Heart Association Inc 1101 W Peachtree St NE Atlanta 9 Ga course at General Oglethorpe Hotel Savannah Ga	G	BC	Lec Pan O AV	10	9/13/57	9/14/57	C 2 days	None
Electrocardiography and Heart Disease	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SO	Lab Pt Dem LC WR Lec O AV EPP	70	10/7/57 3/10/58 7/7/58	10/19/57	C 11 days	150
Cardiovascular Disease	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SOI	Lab Pt Dem LC WR Lec O AV EPP	20	9/18/57	11/20/57	I 10 sessions 2 hr weekly Wednesdays	100
Diagnosis of Congenital and Acquired Malformations of the Heart in Infants and Children Roentgenology Electrocardiography, Angiocardiography and Catheterization of the Heart and Great Vessels	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SO	Lab Pt Dem LC WR Sur Lec O AV	25	11/11/57	11/23/57	C 5 days	100
Cardiac Arrhythmias	Indiana University School of Medicine 1100 W Michigan St Indianapolis	G	BO	Lec Pan O AV	16	9/23/57	9/24/57	C 2 days	20
Radiology of the Heart	Indiana University School of Medicine 1100 W Michigan St Indianapolis	G	SOI	Lec O AV	5	1/2/58	1/30/58	I 5 sessions 1 hr weekly Thursdays	25
Heart Symposium (7th Annual)	Indiana University School of Medicine 1100 W Michigan St Indianapolis	G	BO	Sem Lec Pan AV	8	2/12/58	2/13/58	C 2 days	Nil

Rheumatic Heart Disease Arteriosclerotic Heart Disease Congestive Failure	Indiana University School of Medicine 1100 W Michigan St Indianapolis	G	BC	Lec Pan O AV	16	5/26/58	5/27/58	C 2 days	20
Mid West Cardiac Conference	State University of Iowa College of Medicine University Hospital Iowa City	G	BC	Lec Pan O AV	18 23	10/ 3/57	10/ 5/57	C 3 days	Nil
Clinical Traineeship in Cardiovascular Disease	University of Kansas Medical Center 39th and Rainbow Blvd Kansas City Ks	C	MT	Lab Pt Dem LC Sem Lec O AV	Approx 120	2/ 1/58 3/ 1/58	2/28/58	Approx 30 days	200
The Heart The Acute Coronary Occlusion	University of Kansas Medical Center 39th and Rainbow Blvd Kansas City Ks	C	BC	Pt Dem LC WR Sem Lec Pan O AV	14	2/24/58	2/25/58	C 2 days	30
Diseases of the Heart	University of Michigan Medical School Department of Postgraduate Medicine University Hospital Ann Arbor Mich	G	SC	Pt Dem Lec O	30	4/14/58	4/18/58	C 5 days	50
Cardiology	Tulane University School of Medicine 1430 Tulane Ave New Orleans	B	SC	Pt Dem WR Sem Lec Pan	40	12/ 2/57	12/ 6/57	C 5 days	50
Latest Advances in Cardiology	American College of Physicians 4200 Pine St Philadelphia 4 course at National Heart Institute National Institutes of Health Bethesda Md	S	SC	Lec Pan O AV	35-40	Unknown		C 5 days	50 A C P members 60 non members
Cardiology 2	Harvard Medical School Courses for Graduates 25 Shattuck St Boston course at Boston City Hospital Boston	C	SCI	Pt Dem Lec	36	11/ 6/57	2/ /58	I 12 sessions 3 hr weekly Wednesday mornings	75
Cardiovascular Diseases for General Physicians	Robert B Howard M D Continuation Medical Education 1342 Mayo Memorial University of Minnesota Minneapolis 14	G	BC	Lec O	15	2/ 6/58	2/ 8/58	C 3 days	30
Cardiovascular Seminar	The University of Mississippi Medical Center 2500 N State St Jackson Miss	B	BC	Pt Dem LC WR Sem Lec Pan O AV	20	1/ 2/58	1/ 5/58	C 4 days	10
Electrocardiography and Heart Diseases	University of Nebraska College of Medicine 42nd and Dewey Omaha	G	BC	WR Sem Lec Pan O AV	18	9/30/57	10/ 2/57	C 3 days	10 per day
Recent Advances in Cardiology	St Michael s Hospital 306 High St Newark N J	G	SCI	Lab Pt Dem LC Pan O	16	9/25/57	1/16/58	I 8 sessions 2 hr mo Wednesdays	25
New Medical and Surgical Approaches to Cardiovascular Disease	Albany Medical College 47 New Scotland Ave Albany 8 N Y	G	SCI	Pt Dem LC Sem O TV	27	1/ 9/58	2/13/58	I 6 sessions 4½ hr weekly Thursdays	12 a day or 60 for course
Clinical Cardiology	Albany Medical College Albany N Y course at Veterans Administration Hospital Albany N Y	G	SC	Pt Dem LC WR Sem Lec O	40	Unknown		C 5 days	60
Recent Advances in Cardiovascular Disease	University of Buffalo School of Medicine 3435 Main St Buffalo	G	BC	Pt Dem LC Sem Lec Pan O	21	12/ 4/57	12/ 6/57	C 3 days	4
Basic Cardiology	Meadowbrook Hospital Carman Ave and Bethpage Turnpike Hempstead N Y	G	SCI	Pt Dem WR Sem Lec	30	10/ 2/57	5/11/58	I 30 sessions 3 hr weekly Wednesdays	100
Medicine PM64 Surgical Treatment of Heart Disease	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Montefiore Hospital New York 67	G	SCI	LC Sem Lec	63	9/24/57 2/ 4/58	1/28/58	I 18 sessions 3½ hr weekly Tuesdays	150
Medicine PM63 Cardiology III	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Montefiore Hospital New York 67	G	SCI	Sem Lec Pt Dem WR Lab	63	9/24/57 2/ 4/58	1/28/58	I 18 sessions 3½ hr weekly Tuesdays	150
Medicine PM60 Cardiology I	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Montefiore Hospital New York 67	C	SCI	Lab Pt Dem LC Lec AV	90	10/ 3/57 2/ 6/58	1/30/58	I 15 sessions 6 hr weekly Thursdays	150
Medicine PM62 Cardiology II	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Montefiore Hospital New York 67	C	SCI	Lab Pt Dem LC Lec	52½	10/ 3/57 2/ 6/58	1/30/58	I 15 sessions 3½ hr weekly to be arranged	150
PM59 Medicine Clinical Cardiology	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Mount Sinai Hospital New York 29	G	SCI	Pt Dem LC Lec	20	10/15/57 2/ 4/58	12/17/57	I 10 sessions 2 hr weekly Tuesdays	60
PM31 Medicine Advances in Cardiovascular Disease	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Mount Sinai Hospital New York 29	C	SC	Pt Dem LC Lec	30	1/27/58	2/ 7/58	C 10 days	75
PM48 Medicine Heart Disease and Circulatory Dynamics	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Mount Sinai Hospital New York 29	G	SCI	LC Lec	20	2/18/58	4/22/58	I 10 sessions 2 hr weekly Tuesdays	50

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CARDIOVASCULAR DISEASE—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Cholesterol and Lipids in Human and Experimental Atherosclerosis	Joint Committee on Post Graduate Education 1313 Bedford Ave Brooklyn N Y course at Beth El Hospital Brooklyn N Y	G	SCI	Lec AV	12	10/57 4/58	12/57	I 8 sessions 1½ hr weekly, Tuesdays	20
Peripheral Vascular Diseases	Joint Committee on Post Graduate Education 1313 Bedford Ave Brooklyn N Y course at Coney Island Hospital Brooklyn N Y	G	SCI	Pt Dem Lec	10	10/57	12/57	I 10 sessions 1 hr weekly Mondays	20
Peripheral Vascular Diseases	Joint Committee on Post Graduate Education 1313 Bedford Ave Brooklyn N Y course at Jewish Hospital Brooklyn N Y	G	SCI	LO Lec	10	4/58	5/58	I 10 sessions twice weekly Mondays Fridays	20
Clinical Cardiology	Joint Committee on Post Graduate Education 1313 Bedford Ave Brooklyn N Y course at Beth El Hospital Brooklyn N Y	G	SCI	LO WR Lec	18	4/58	5/58	I 12 sessions 1½ hr twice weekly Wednesdays Fridays	30
Cardiology	New York Medical College Flower and Fifth Ave Hospitals Fifth Ave and 106th St New York	S	SCI	Lab Pt Dem Sem Lec	60	Arranged		I 20 sessions 3 hr weekly Wednesdays	150
5415-A Modern Concepts in Etiology Diagnosis and Treatment of Heart Diseases	New York University Post Graduate Medical School 550 First Ave New York	G	SO	Pt Dem Lec	35	1/ 6/58	1/10/58	C 5 days	55
548-A Modern Trends in Diagnosis and Treatment of Congenital Heart Disease	New York University Post Graduate Medical School 550 First Ave New York	G	BC	Pt Dem Lec AV	21	2/ 3/58	2/ 5/58	C 3 days	55
5410-A Cardiology	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Pt Dem Lec AV	24	4/10/58	5/29/58	I 8 sessions 3 hr weekly Thursdays	85
549-A Cardiology	New York University Post Graduate Medical School 550 First Ave New York	G	SC	Pt Dem Lec AV	105	5/ 5/58	5/23/58	C 15 days	250
Seminars on Heart Disease	St Francis Hospital and Sanatorium Roslyn N Y	G	SCI	Sem Lec O	8	9/57	5/58	I 4 sessions 2 hr mo on first Thursday	Unknown
Postgraduate Course of Lectures in Cardiology with Salient Features Pertinent to Adult and Pediatric Cardiology	St Francis Hospital and Sanatorium Roslyn N Y	G	SO	Lab Pt Dem LO WR Sem Lec Pan O AV TV	82	4/14/58	4/26/58	C 12 days	Unknown
Postgraduate Course in Cardiovascular Diseases	Personal Health Division North Carolina State Board of Health Raleigh N C course at Bowman Gray School of Medicine of Wake Forest College Winston Salem N C	G	BO	Pt Dem LO WR Sem Lec Pan O AV	20	10/ 3/57	10/ 5/57	C 3 days	Nil
Seminar on Heart Disease	G B Hannah M D Secy Society of General Physicians Southwestern Ohio Sharon and Willow Aves Glendale Ohio course at University of Cincinnati College of Medicine Cincinnati	G	BO	Sem Lec Pan O	4	1/19/58	1/19/58	C 1 day	10
Postgraduate Course on Cardiac Arrest and Resuscitation	Mercy Hospital Madison Ave Toledo Ohio	B	BC	Lab Sur Lec AV EPP	4	Monthly repeated twice each mo		C 1 day	10
Postgraduate Cardiology I	Hahnemann Medical College and Hospital 230 N Broad St Philadelphia	G	SCI	Pt Dem Lec Pan O AV	90	10/ 4/57	5/30/58	I 30 sessions 3 hr weekly Thursdays	150
Postgraduate Cardiology 2	Hahnemann Medical College and Hospital of Philadelphia 230 N Broad St Philadelphia	G	SCI	Pt Dem Lec Pan O IV EPP	45	10/57	5/58	I 30 sessions 1½ hr weekly Thursdays	150
Cardiac Arrhythmias	University of Pennsylvania Graduate School of Medicine 237 Medical Lab Bldg Philadelphia	B	SC	Sem Pan O AV	Unknown	Fall/57	Unknown	C Unknown	75
Cardiac Arrhythmias	The American College of Physicians 4200 Pine St Philadelphia 4 course at Philadelphia General Hospital Philadelphia	S	BO	Lec Pan O AV	21	11/ 1/57	11/ 3/57	C 3 days	30 A C P members 60 non members
Graphic Methods in Cardiovascular Diagnosis	Graduate School of Medicine University of Pennsylvania Philadelphia	B	SOI	Pt Dem Pan AV	30	1/ 8/58	3/58	I 10 sessions 3 hr weekly Wednesdays	75
Changing Attitudes in Coronary Heart Disease	Washington State Heart Association 3114 Arcade Bldg Seattle course at University of Washington School of Medicine Seattle	G	BO	Lec Pan O	9	10/ 4/57	10/ 5/57	C 2 days	Unknown

CLINICAL PATHOLOGY

Laboratory Methods in the Diagnosis of Viral and Rickettsial Diseases (8 20)	Communicable Disease Center U S P H S P O Box 185 Chamblee Ga , course at Virus and Rickettsia Laboratories U S P H S Montgomery Ala	Principally technical personnel open to M D s	SO	Lab Lec O AV, EPP	80	10/14/57 3/10/58	10/25/57	O 10 days	Nil
Laboratory Diagnosis of Virus Diseases	Laboratory Training Services CDC P O Box 185 Chamblee Ga course at Virus and Rickettsia Section CDC Montgomery Ala	G	SO	Lab Sem Lec Pan O AV EPP	108	10/14/57 3/10/58	10/25/57	O 12 days	Nil
Laboratory Methods in the Diagnosis of Rabies (8 70)	Communicable Disease Center U S P H S P O Box 185 Chamblee Ga course at Virus and Rickettsia Laboratories Montgomery Ala	Principally technical personnel open to M D s	SO	Lab Lec O AV, EPP	40	10/28/57 3/24/58	11/ 1/57	C 5 days	Nil
Special Training in Virus Techniques (8 21)	Communicable Disease Center U S Public Health Service P O Box 185 Chamblee Ga course at Virus and Rickettsia Laboratories U S Public Health Service Montgomery Ala	Principally technical personnel open to M D s	SO	Lab EPP	80-160	Arranged		O 10 to 20 days	Nil
Principles of Mycotic Infection and Laboratory Techniques of Diagnosis	Department of the Army Office of the Surgeon General Education and Training Division Washington 25 D C course at Armed Forces Institute of Pathology Walter Reed Army Medical Center, Washington D C	S	SO	Lab Pt Dem Sem Pan O AV EPP	30	5/19/58	5/23/58	O 5 days	Nil
Laboratory Methods in the Diagnosis of Parasitic Diseases—Part I (8 00)	Communicable Disease Center U S P H S P O Box 185 Chamblee Ga	Principally technical personnel open to M D s	SO	Lab, Lec O, AV, EPP	100	9/ 9/57	10/ 4/57	O 20 days	Nil
Laboratory Methods in the Diagnosis of Parasitic Disease—Part II (8 01)	Communicable Disease Center U S P H S P O Box 185 Chamblee Ga	Principally technical personnel open to M D s	SO	Lab Lec O, AV, EPP	120	10/ 7/57	10/25/57	O 15 days	Nil
Laboratory Methods in Medical Mycology (8 15)	Communicable Disease Center, U S P H S P O Box 185 Chamblee Ga	Principally technical personnel open to M D s	SO	Lab Lec, O AV EPP	120	1/ 6/58	1/24/58	O 15 days	Nil
Laboratory Methods in the Diagnosis of Tuberculosis (8 55)	Communicable Disease Center U S P H S P O Box 185 Chamblee Ga	Principally technical personnel open to M D s	SO	Lab Lec O AV EPP	80	1/20/58	1/31/58	O 10 days	Nil
Laboratory Methods in the Study of Pulmonary Mycoses (8 17)	Communicable Disease Center U S P H S P O Box 185 Chamblee, Ga	Principally technical personnel open to M D s	SO	Lab Lec O AV EPP	80	2/ 3/58	2/14/58	O 10 days	Nil
Laboratory Methods in the Diagnosis of Bacterial Disease—Part I (8 40)	Communicable Disease Center, U S P H S P O Box 185 Chamblee Ga	Principally technical personnel open to M D s	SO	Lab Lec, O AV EPP	80	2/10/58	2/21/58	O, 10 days	Nil

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CLINICAL PATHOLOGY—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Laboratory Methods in the Diagnosis of Bacterial Diseases—Part II (8 41)	Communicable Disease Center U S P H S P O Box 185 Chamblee Ga	Principally technical personnel open to M D s	SC	Lab Lec O AV EPP	80	2/24/58	3/ 7/58	C 10 days	Nil
Serologic Methods in the Diagnosis of Parasitic and Mycotic Infections (9 41)	Communicable Disease Center U S P H S P O Box 185 Chamblee Ga	Principally technical personnel open to M D s	SC	Lab Lec O AV EPP	80	3/10/58	3/21/58	C 10 days	Nil
Laboratory Methods in the Diagnosis of Enteric Bacterial Diseases (8 50)	Communicable Disease Center U S P H S P O Box 185 Chamblee Ga	Principally technical personnel open to M D s	SC	Lab Lec O AV EPP	80	3/10/58	3/21/58	C 10 days	Nil
A series of courses covering the bacteriophage typing of staphylococci serologic differentiation of streptococci special problems in enteric bacteriology laboratory methods in the diagnosis of bacteriology	Communicable Disease Center U S P H S P O Box 185 Chamblee Ga	Principally technical personnel open to M D s	SC	Lab AV EPP	80	Arranged		C 10 days	Nil
A series of coures on *Salmonella Typhosa and* Corynebacterium Diphtherine	Communicable Disease Center U S P H S P O Box 185 Chamblee Ga	Principally technical personnel open to M D s	SC	Lab EPP	40	Arranged		C 5 days	Nil
Laboratory Methods in the Diagnosis of Leptospirosis (8 53)	Communicable Disease Center U S P H S P O Box 185 Chamblee Ga	Principally technical personnel open to M D s	SC	Lab EPP	40 160	Arranged		C 5 to 20 days	Nil
Clinical Chemistry	University of Kansas Medical Center 39th and Rainbow Blvd Kansas City Ks	S	BC	Lab Pt Dem WR Lec Pan O AV	14	2/17/58	2/18/58	C 2 days	30
Clinical Pathology for General Physicians	Robert B Howard M D Continuation Medical Education 1342 Mayo Memorial University of Minnesota Minneapolis 14	G	BC	Lab Lec O	15	6/16/58	6/18/58	C 3 days	30
Symposium on Clinical Chemistry Methods	Frank E Bunts Educational Institute (Cleveland Clinic Foundation) 2020 E 93rd Street Cleveland	S and Lab Tech	BC	Sem Lec Pan O AV	20	11/13/57	11/15/57	C 3 days	15
Laboratory Techniques and Usages	New York Medical College Flower and Fifth Ave Hospitals Fifth Ave and 106th St New York	S	SCI	Lab Pt Dem Sem Lec	26	Arranged		I 13 sessions 2 hr weekly	100
Clinical Pathology	University of Oregon Medical School 3181 S W Sam Jackson Park Rd Portland 1 Ore	C	SCI	Lab I O WR Sem Lec Pan O AV EPP	16	1/58	3/58	I 8 sessions 2 hr weekly Tuesdays	25

DERMATOLOGY

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Current Therapy in Dermatology	University of California Medical Center Los Angeles 24	G	BC	Pt Dem LC Sem Lec Pan O AV	15	10/24/57	10/26/57	C 3 days	Unknown
Dermatology for the General Practitioner	University of Southern California School of Medicine Postgraduate Division 2025 Zonal Ave Los Angeles	G	BC	Pt Dem IC Lec Pan O	23	4/18/58	4/20/58	C 3 days	37 50
Stanford Postgraduate Conference in Office Dermatology	Office of the Dean Stanford University Medical School 2398 Sacramento St San Francisco	Unknown	BC	Unknown	15	9/19/57	9/21/57	C 2½ days	Unknown
Dermatology	University of California Medical Center Second and Parnassus San Francisco	G	BC	Pt Dem Lec Pan O	14	1/17/58	1/18/58	C 2 days	Unknown
Dermatology for General Practitioners	University of Colorado School of Medicine 4200 E Ninth Ave Denver 0	B	BC	Lec Pan	20	7/58	7/ 8	C 3 days	30

General Dermatology	Cook County Graduate School of Medicine 707 South Wood St Chicago	G	SOI	Lab Pt Dem LC WR Lec O	25	9/19/57 3/20/58	11/21/57	I 10 sessions 2½ hr weekly Thursdays	100
Course II in Dermatology	Cook County Graduate School of Medicine 707 South Wood St Chicago	G	SO	Lab Pt Dem LC WR Lec O AV EPP	60	10/14/57 5/ 5/58	10/20/57	C 12 days	100
Clinical Dermatology	Cook County Graduate School of Medicine 707 South Wood St Chicago	G	SO	Lab Pt Dem LC WR Sem O	120	Arranged		O 4 weeks	125
Surgical Planing in Dermatology	Tulane University School of Medicine 1430 Tulane Ave New Orleans	S	BO	Lab WR Sem Lec	24	10/17/57	10/19/57	C 3 days	100
Symposium on Skin Cancer	Robert B Howard M D Continuation Medical Education 1342 Mayo Memorial University of Minnesota Minneapolis 14	S	BO	Lec O	15	10/24/57	10/26/57	O 3 days	30
Diseases of the Skin	University of Nebraska College of Medicine 42nd and Dewey Omaha	G	BO	Pt Dem LC Sem Lec Pan O AV	6	3/12/58	3/12/58	C 1 day	10
Dermatology	University of Buffalo School of Medicine 3435 Main St Buffalo	G	BC	Pt Dem LC WR Sem Lec Pan O AV	14	11/20/57	11/21/57	C 2 days	30
Dermatology PM60 Treatment of Common Skin Disorders	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Montefiore Hospital New York 67	G	SCI	Lab Pt Dem Lec AV EPP	18	1/ 6/58	3/ 3/58	I 9 sessions 2 hr weekly Mondays	40
Diagnosis and Treatment of Common Skin Disorders	Joint Committee on Post Graduate Education 1313 Bedford Ave Brooklyn N Y course at Beth El Hospital Brooklyn N Y	G	SCI	Pt Dem Lec	8	10/57 4/58	12/57	I 8 sessions 1 hr weekly Tuesdays	20
Dermatology and Syphilology	New York Polyclinic Hospital 315 W 50th St New York	G	SO	Lab Pt Dem LC WR Lec Pan O AV EPP	1900	10/ 1/57 4/ 1/58	9/30/58	C 288 days	600
521 A Comprehensive Review in Dermatologic Histopathology	New York University Post Graduate Medical School 550 First Ave New York	G	SO	Lab Lec	35	9/16/57	9/20/57	C 5 days	85
522 A Seminar in Dermatology and Syphilology (Designed for General Physicians)	New York University Post Graduate Medical School 550 First Ave New York	G	SO	Pt Dem Lec	35	2/17/58	2/21/58	C 5 days	85
523-A Symposium on Dermatology and Syphilology (For Dermatologists)	New York University Post Graduate Medical School 550 First Ave New York	S	SC	Pt Dem Lec	35	5/19/58	5/23/58	O 5 days	100
Dermatology	University of Oregon Medical School 3181 S W Sam Jackson Park Rd Portland 1 Ore	G	BO	Pt Dem LC WR Sem Lec Pan O AV	15	4/14/58	4/15/58	C 2 days	20
Dermatology	Albert Einstein Medical Center—Northern Division York & Tabor Rd Philadelphia	G	SOI	Pt Dem LC Sur O EPP	20	10/10/57	12/19/57	I 10 sessions 2 hr weekly Thursdays	35
Dermatology for the Internist and General Practitioner	Graduate Hospital 19th and Lombard Sts Philadelphia	B	SCI	Lec AV	Unknown	1/ 6/58	4/14/58	I 15 sessions 1 hr weekly Mondays	20
Dermatology	University of Tennessee College of Medicine 62 S Dunlap Memphis Tenn	G	BC	Pt Dem WR Lec Pan O AV	24	2/26/58	2/28/58	C 3 days	50
Dermatologic Principles for the General Practitioner	Dr Robert C Parkin Assistant to the Dean University of Wisconsin Medical School 418 N Randall Ave Madison Wis	G	BC	Pt Dem LC Lec O	18	3/11/58	3/13/58	C 3 days	25

ELECTROCARDIOGRAPHY

835—Basic Home Course in Electrocardiography—Interpretation	University of Southern California School of Medicine Postgraduate Division 2025 Zonal Ave Los Angeles 33	G	HS(C)	HS (EPP C)	52	9/18/57 10/16/57 11/13/57 12/12/57 1/15/58	9/18/58	Given once weekly	100
836—Advanced Home Course in Electrocardiography—Interpretation	University of Southern California School of Medicine Postgraduate Division 2025 Zonal Ave Los Angeles	C	HS(C)	HS (EPP C)	52	9/18/57 10/16/57 11/13/57 12/12/57 1/15/58	9/18/58	Given once weekly	85
834—Practical Electrocardiography—Interpretation	University of Southern California School of Medicine Postgraduate Division 2025 Zonal Ave Los Angeles	G	BC	Lec O	23	10/ 4/57	10/ 6/57	C 3 days	75
Modern Concepts of Electrocardiographic Interpretation	Colorado Heart Association 1636 Logan St Denver course at Veterans Administration Hospital Denver	G	BO	Lec Pan AV	15	9/ 3/57	9/ 5/57	C 3 days	Unknown
Clinical Electrocardiography	University of Colorado Medical Center 4200 E Ninth Ave Denver 20	B	BO	Pt Dem Lec Pan	16	9/ 3/57	9/ 4/57	C 2 days	15
Fundamentals of Electrocardiography	University of Colorado Medical Center 4200 E Ninth Ave Denver 20	G	SOI	Lec	Unknown	9/57	12/57	I once weekly for 11 weeks	10

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ELECTROCARDIOGRAPHY Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Medicine 214 Advanced Clinical Electrocardiography	Assistant Dean of Postgraduate Medical Education Yale University School of Medicine 333 Cedar St New Haven Conn	C	SCI	Lec AV	12	10/ 1/57	12/17/57	I 12 sessions 1 hr weekly Tuesdays	50
Elementary Clinical Electrocardiography	The Lawrence and Memorial Associated Hospitals 365 Montauk Ave New London Conn	C	SCI	Sem O AV	34 or more	9/19/57	2/58	I 17 sessions or more 2 2½ hr weekly Tuesdays	70
Advances in Electrocardiographic Diagnosis and Treatment of Arrhythmias	Mount Sinai Hospital of Greater Miami 4300 Alton Rd Miami Beach Fla	S	SC	Lec O AV	15	11/18/57	11/22/57	C 5 days	25
Interpretation of Complex Arrhythmias	Michael Reese Hospital 29th St and Ellis Ave Chicago	S	SC	Sem O AV EPP	30	12/ 9/57	12/13/57	C 5 days	100
Electrocardiographic Interpretation	Michael Reese Hospital 29th St and Ellis Ave Chicago	C	SC	Sem Lec O EPP	80	8/18/58	8/31/58	C 12 days	150
One-Week Advanced Course in Electrocardiography	Cook County Graduate School of Medicine 707 S Wood St Chicago	C	SC	Lab Lec O AV FPI	40	6/23/58	6/27/58	C 5 days	150
Physiologic Principles Underlying Electrocardiagram Interpretation	Indianapolis General Hospital 960 Locke St Indianapolis	C	SCI	Lec O AV FPP	50	10/ 3/57	2/58	I 25 sessions 1½ 2 hr weekly Thursdays	Nil
Basic Electrocardiography	Indiana University School of Medicine 1100 W Michigan St Indianapolis	C	BC	Lec Pan O AV	21	3/ 3/58	3/ 5/58	C 3 days	30
Interpretation of Electrocardiograms—I	University of Kansas Medical Center 39th and Rainbow Blvd Kansas City Ks	C	HS(C)	HS (EPP & C)	13	10/11/57 4/ 4/58	4/11/58	26 weekly lessons	18
Interpretation of Electrocardiograms—II	University of Kansas Medical Center 39th and Rainbow Blvd Kansas City Ks	G	HS(C)	HS (EPP & C)	13	11/ 7/57 5/ 1/58	5/ 8/58	26 weekly lessons	17
Practical Electrocardiography and Spatial Vectorcardiography	Heart Station Prince Georges General Hospital Cheverly Md	B	SCI	Sem Lec O	30 min	10/57	12/57	I 15 20 sessions 2 hr weekly Fridays	30
Practical Electrocardiography Course "B	Beth Israel Hospital 330 Brookline Ave Boston	C	SCI	Lec O AV FPP	30	10/ 2/57	12/ 4/57	I 10 sessions 3 hr weekly Wednesdays	100
Practical Electrocardiography Course "A	Beth Israel Hospital 330 Brookline Ave Boston	G	SC	Lec O AV FPP	30	11/ 4/57	11/ 8/57	C 5 days	100
EKG Clinics Course D	Beth Israel Hospital 330 Brookline Ave Boston	C	SCI	Lec O AV FPP	30	3/ 5/58	5/11/58	I 10 sessions 3 hr weekly Wednesdays	100
EKG Clinics Course C	Beth Israel Hospital 330 Brookline Ave Boston	C	SC	Lec O AV FPP	30	4/21/58	4/25/58	C 5 days	100
Electrocardiography I	Tufts University School of Medicine Postgraduate Division 171 Harrison Ave Boston	C	SC	Pt Dem Lec Pan AV	25	12/ 2/57	12/ 6/57	C 5 days	40
Electrocardiography II	Tufts University School of Medicine Postgraduate Division 171 Harrison Ave Boston	C	BC	Pt Dem Lec Pan FPP	15	5/12/58	5/14/58	C 3 days	25
Electrocardiographic Diagnosis	University of Michigan Medical School Department of Postgraduate Medicine University Hospital Ann Arbor Mich	C	SC	Pt Dem Lec Dem O AV	31	1/21/58	1/26/58	C 5½ days	75
Basic Electrocardiography	Highland Park General Hospital 379 Glendale Highland Park Mich	B	SCI	Lec AV	16	10/15/57	2/15/58	I 16 sessions 1 hr weekly	Nil
Electrocardiography for General Physicians and Specialists	Robert B Howard M D Continuation Medical Education 1342 Mayo Memorial University of Minnesota Minneapolis 14	B	SC	Lab Sem Lec Pan O	30	5/ 5/58	5/ 9/58	C, 5 days	50
Basis and Clinical Electrocardiography	St Michael's Hospital 66 High St Newark N J	G	SCI	Lec O AV	12	9/25/57	4/30/58	I 12 sessions 1 hr weekly Wednesdays	25
Principles of Electrocardiography	Albany Medical College 47 New Scotland Ave Albany N Y Course at Veterans Administration Hospital Albany N Y	C	SCI	Sem Lec O	12	9/12/57	10/17/57	I 6 sessions 2 hr weekly Thursdays	60
Advanced Electrocardiography	Albany Medical College 47 New Scotland Ave Albany N Y Course at Veterans Administration Hospital Albany N Y	C	SCI	Sem Lec Pan O	12	10/24/57	12/ 5/57	I 6 sessions 2 hr weekly Thursdays	60
Principles of Electrocardiography Via Two Way Radio	Albany Medical College 47 New Scotland Ave Albany 8 N Y to select area hospitals	G	OO(R)	Lec O Two Way Radio	18	1/ 6/58	2/13/58	12 sessions 1½ hr twice weekly Mondays Thursdays	60

Advanced Course in Interpretation of Electrocardiograms	Albany Medical College 47 New Scotland Ave Albany N Y	G	SOI	Lec	12	2/19/58	3/26/58	I 6 sessions 2 hr weekly Wednesdays	60
Clinical Correlations of Electrocardiograms with Disease Processes (Hospitalized Patients)	Albany Medical College 47 New Scotland Ave Albany N Y	G	SOI	Pt Dem Sem Lec O LPP	24	Arranged		I 12 2 hr sessions arranged	60
Electrocardiography	Meadowbrook Hospital Carman Ave and Bethpage Turnpike Hempstead N Y	G	SOI	Lec	15	1/15/58	4/23/58	I 15 sessions 1 hr weekly Wednesdays	25
Medicine PM63A Clinical Electrocardiography	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Montefiore Hospital New York 67	G	SCI	Lec AV	36	9/24/57 2/ 4/58	1/28/58	I 18 sessions 2 hr weekly Tuesdays	100
Medicine (PM40)	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Mount Sinai Hospital New York 29	G	SO	Pt Dem Sem Lec EPP	30	10/14/57 1/13/58	10/25/57	C 10 days	75
PM 43 Medicine Vectorcardiography	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Mount Sinai Hospital New York 29	G	SO	LO Lec	48	12/ 2/57	12/ 7/57	C 6 days	75
Basic Electrocardiography in Clinical Medicine	Joint Committee on Postgraduate Education of Kings Medical Society 1313 Bedford Ave Brooklyn 16 N Y course at Beth El Hospital Brooklyn N Y	G	SOI	Lec AV	12	10/57 4/58	Unknown	I 6 sessions 2 hr weekly Mondays and Fridays	20
Interpretation of the Electrocardiogram	Joint Committee on Post-Graduate Education 1313 Bedford Ave Brooklyn N Y course at Coney Island Hospital Brooklyn N Y	G	SCI	Lec	10	10/57 4/58	12/57	I 10 sessions 1 hr weekly Tuesdays	20
Interpretation of Electrocardiographic Tracings	New York Medical College Flower and Fifth Ave Hospitals Fifth Ave and 106th St New York	G	SO	Lec	12¼	Arranged		C 10 days	100
Practical Electrocardiography	New York Polyclinic Hospital 345 W 50th St New York	G	SC	Pt Dem LO Sem Lec AV	10	4/ 1/58	4/ 5/58	C 5 days	100
5416-A Fundamentals of Clinical Electrocardiographic Interpretation	New York University Post Graduate Medical School 550 First Ave New York	G	SOI	Lec	32	11/ 6/57	3/ 5/58	I 16 sessions 2 hr weekly Wednesdays	50
5412-A Electrocardiography	New York University Post Graduate Medical School 550 First Ave New York	G	SC	Pt Dem AV Lec	35	11/11/57 3/21/58	11/16/57	C 5 days	85
5411 A Clinical Electrocardiography	New York University Post Graduate Medical School 550 First Ave New York	G	SOI	Pt Dem Lec AV	12	4/10/58	5/29/58	I 8 sessions 1½ hr weekly Thursdays	50
Basic Principles of Electrocardiography	Rochester General Hospital West Side 501 W Main St Rochester N Y	G	SOI	Lec Pan O AV	20	9/19/57	12/12/57	I 10 sessions 2 hr weekly Thursdays	20
Basic Principles of Electrocardiography	State University of New York Upstate Medical Center 766 Irving Ave Syracuse N Y	G	SCI	Lab Lec AV	14	10/ 3/57	11/ 7/57	I 7 sessions 2 hr weekly Thursdays	15
Electrocardiographic Interpretation	State University of New York Upstate Medical Center 766 Irving Ave Syracuse N Y	G	SCI	Lab Lec O AV EPP	14	4/10/58	5/22/58	I 7 sessions 2 hr weekly Thursdays	15
Electrocardiographic Review Advanced	Duke University School of Medicine Durham N C	G	BO	Lab Pt Dem LO WR Lec Pan	18	1/58		C 3 days	100 Paid by N C Health Dept
Electrocardiographic Review Primary	Duke University School of Medicine Durham N C	G	BO	Lab Pt Dem LO WR Lec Pan	18	6/58		C 3 days	100 Paid by N C Health Dept
Electrocardiographic Diagnosis	Mount Sinai Hospital 1800 E 105th St Cleveland	G	SCI	Lab Lec	18	10/57	1/58	I 12 sessions 1½ hr weekly Wednesdays	10
Basic Electrocardiography	Albert Einstein Medical Center—Southern Division Fifth & Reed Sts Philadelphia	G	SCI	Pt Dem Lec AV	30	11/13/57	1/29/58	I 10 sessions 3 hr weekly Wednesdays	50
Advanced Electrocardiography	Albert Einstein Medical Center—Southern Division Fifth & Reed Sts Philadelphia	G	SCI	Lab Pt Dem Lec	30	2/19/58	4/23/58	I 10 sessions 3 hr weekly Wednesdays	50
Elementary Electrocardiography	University of Tennessee College of Medicine 62 S Dunlap Memphis Tenn	G	BO	Pt Dem WR Lec Pan O AV	24	9/ 4/57	9/ 6/57	C 3 days	50
Electrocardiographic Interpretation and Cardiologic Advances	Dr Robert C Parkin Assistant to the Dean University of Wisconsin Medical School 418 N Randall Ave Madison Wis	G	BO	Pt Dem LO Lec O	18	11/12/57	11/11/57	C 3 days	25

Key will be found on page 1774

ELECTROENCEPHALOGRAPHY

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Neurology PM33 Clinical Electroencephalography	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Mount Sinai Hospital New York 29	S	SCI	Lab LC	45	9/26/57	1/ 9/58	I 15 sessions 3 hr weekly Thursdays	100
550 A Electroencephalography	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Lec Dem AV	12	10/ 7/57 3/ 3/58	11/25/57	I 8 sessions 1½ hr weekly Mondays	35
642 A Electroencephalography	New York University Post Graduate Medical School 550 First Ave New York	G	SC	Lab	160	By arrangement		O 8 weeks	300

ENDOCRINOLOGY
(See also Internal Medicine)

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Dynamics of Endocrine and Metabolic Disease	Institute for Metabolic Research Highland Alameda County Hospital 2701—14th Ave Oakland Calif	S	BC	Pt Dem LC Lec Pan O	24	2/10/58	2/12/58	O 3 days	75
Collagen Diseases	University of California at Los Angeles Medical Center Los Angeles 24	G	BC	Pt Dem Lec Pan O AV	12	March/58		O, 2 days	Unknown
Disorders of Fluid and Electrolyte Metabolism Etiology and Management	University of California at Los Angeles Medical Center Los Angeles 24	G	SCI	Lec Pan O AV	10	Spring/58		I 8 sessions 2 hr weekly	50
Sacramento Evening Series—Endocrinology	University of California Medical Extension Second and Parnassus San Francisco course at Mercy Hospital Sacramento Calif	G	BCI	Lec O	9	9/25/57	11/20/57	I 3 sessions 3 hr Wednesdays once a month	40
Endocrinology	University of Colorado School of Medicine 4200 E Ninth Ave Denver 20	G	SCI	Lec	Unknown	1/58	3/58	I 1 hr weekly for 11 wks	10
9th Postgraduate Assembly in Endocrinology and Metabolism	Dr Robert B Greenblatt University of Georgia School of Medicine Augusta Ga	G	SC	Lab Pt Dem LO Sem Lec Pan O AV	43	10/21/57	10/25/57	O, 5½ days	100
Endocrinology	University of Nebraska College of Medicine 42nd and Dewey Omaha	G	BC	Pt Dem Sem Lec Pan O AV	9	2/ 7/58	2/ 8/58	O 1½ days	15
Recent Advances in Endocrinology	St Michael's Hospital 306 High St Newark N J	G	BCI	Lab Lec O	8	10/ 9/57	2/12/58	I 4 sessions 2 hr mo Wednesdays	25
Adrenal Hormone Therapy in Practice	Albany Medical College 47 New Scotland Ave Albany N Y	G	BCI	Pt Dem, LC Sem O TV	18	2/20/58	3/13/58	I 4 sessions 4½ hr weekly Thursdays	12 a day or 40 for course
Sex Hormones in Adolescence and Senescence	Albany Medical College 47 New Scotland Ave Albany 8 N Y	G	BCI	Pt Dem LO Sem O TV	9	3/20/58	3/27/58	I 2 sessions 4½ hr on each of 2 Thursdays	12 a day or 20 for course
Metabolic Endocrinology	Joint Committee on Post Graduate Education 1313 Bedford Ave Brooklyn N Y course at Maimonides Hospital Brooklyn N Y	G	SOI	Pt Dem Lec	15	10/57	12/57	I 10 sessions 1½ hr weekly, Tuesdays	20
Endocrinology	Joint Committee on Post Graduate Education 1313 Bedford Ave Brooklyn N Y course at Jewish Hospital Brooklyn N Y	G	SCI	Pt Dem, Lec	12	10/57 4/58	12/57	I 12 sessions 1 hr weekly Thursdays	20
Endocrinology	New York Medical College Flower and Fifth Ave Hospitals Fifth Ave and 106th St New York	G	SCI	Lab Sem	70	Arranged		I 14 days	100
413 A Endocrinology	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Pt Dem Lec	23	4/ 7/58	5/29/58	I 23 sessions 1 hr thrice weekly Mondays Thursdays Fridays	45
Clinical Endocrinology	Albert Einstein Medical Center—Southern Division Fifth & Reed Sts Philadelphia	G	SCI	Pt Dem LO Lec Pan AV	30	11/27/57	3/ 5/58	I 13 sessions 3 hr weekly Wednesdays	60
Gynecic Endocrinology for Internists	University of Pennsylvania Graduate School of Medicine 237 Medical Lab Bldg Philadelphia	B	SOI	Lec	12	10/57		I 12 sessions 1 hr weekly Mondays	15
Endocrinology for Internists	University of Pennsylvania Graduate School of Medicine 237 Medical Lab Bldg Philadelphia	G	SCI	LO Lec O	18½	1/ 7/58	4/15/58	I Tuesdays for 15 wks	20

ENDOSCOPY

Removal of Foreign Bodies From Lung and Bronchi	University of California Medical Center Los Angeles 24	G	BC	Lab Lec AV	Unknown	Fall/57	Unknown	C 1½ days	100
Bronchoesophagology	University of Illinois College of Medicine 1853 W Polk St Chicago 12	S	SC	Lab Pt Dem LC WR Animal Sur Sem Lec Pan O AV EPP	84	11/4/57	11/16/57	C 12 days	210
Gastroscopy	Joint Committee on Post Graduate Education 1313 Bedford Ave Brooklyn N Y course at Coney Island Hospital Brooklyn N Y	G	SCI	Lec AV	15	4/58	5/58	I 6 sessions 2½ hr weekly Mondays	30
Gastroscopy	New York Medical College Flower and Fifth Ave Hospitals Fifth Ave and 106th St New York	G	SCI	Pt Dem Lec EPP	25	Arranged		I 13 days	200
Gastroscopy (Advanced)—Instrumentation and Interpretation	New York Medical College Flower and Fifth Ave Hospitals Fifth Avenue and 106th St New York	C	SCI	Pt Dem Lec EPP	25	Arranged		I 13 days	200
Peritoneoscopy	New York Medical College Flower and Fifth Ave Hospitals Fifth Ave and 106th St New York	C	SC	Lec AV	Arranged	Arranged		O arranged	100
427 A Gastroscopy and Flexible Tube Esophagoscopy	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Lab Pt Dem LPP	36	9/9/57 12/2/57 3/3/58	12/9/57	I 36 sessions 1 hr thrice weekly Mondays Wednesdays Fridays	300
Bronchoesophagology	Temple University School of Medicine and Hospital 3400 N Broad St Philadelphia 40	B	SC	Lab Pt Dem LC Sur Sem Lec Pan O AV	80	9/9/57	9/20/57	C 11 days	250

FORENSIC MEDICINE

Forensic Pathology	Department of the Army Office of the Surgeon General Education and Training Division Washington 25 D C course at Armed Forces Institute of Pathology Washington D C	S	SC	Lab Sem Lec Pan O AV TV	40	11/4/57	11/8/57	C 5 days	Nil
533-A Toxicology	New York University Post Graduate Medical School 550 First Ave New York	C	SC	Lab Sem Lec	Varies	Unknown		Unknown	100
Investigation of Homicide	University of Cincinnati College of Medicine Institute of Industrial Health Eden and Bethseda Cincinnati	Unknown	SC	Sem Lec Pan O AV	48	11/11/57	11/16/57	O 5½ days	50

FRACTURES

Management of Fractures	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SCI	Lab Pt Dem LC WR Sur Lec O	60	9/18/57 3/19/58	11/21/57	I 10 sessions 6 hr weekly Wednesdays	125
Course II—Clinical Fractures	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SC	Lab Pt Dem LC WR Sur Lec O AV EPP	20	Arranged	Saturday following starting date	O 5 days	50
Course III in Fractures and Traumatic Surgery	Cook County Graduate School of Medicine 707 S Wood St Chicago Ill	G	SC	Lab Pt Dem LC WR Sur Lec O AV	26	10/21/57 3/10/58 6/16/58	11/2/57	C 12 days	150
Trauma and Fractures	State University of Iowa College of Medicine University Hospitals Iowa City	G	BC	Pt Dem LO WR Lec Pan O AV	12 14	9/18/57	9/19/57	C 2 days	30
Treatment of Fractures and Other Traumatic Conditions	Harvard Medical School Courses for Graduates 25 Shattuck St Boston course at Massachusetts General Hospital Boston	G	SC	Pt Dem LO Lec Pan AV	46	10/7/57	10/12/57	O 6 days	150
Fractures for General Physicians	Robert B Howard M D Continuation Medical Education 1342 Mayo Memorial University of Minnesota Minneapolis 14	G	BO	Pt Dem Lec O	18	12/5/57	12/7/57	C 3 days	30
Fractures and Allied Trauma	New York Medical College Flower and Fifth Ave Hospitals Fifth Ave and 106th St New York	S	SC	Pt Dem Sem Lec AV	160	Arranged		C 20 days	200
Fractures and Dislocations	University of Tennessee College of Medicine 62 S Dunlap Memphis Tenn	G	BC	Pt Dem WR Lec Pan O AV	24	4/9/58	4/11/58	C 3 days	50
Postgraduate Fracture Course	The American Fracture Association 610 Griesheim Bldg Bloomington Ill and University of Texas Postgraduate School of Medicine course at El Paso County Medical Society Headquarters El Paso Tex	G	BC	Pt Dem LO Lec O AV	8	9/29/57	9/29/57	C 1 day	10

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FRACTURES—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Treatment of Fractures and Dislocations	Department of the Army Office of the Surgeon General Education and Training Division Washington 25 D C course at Brooke Army Hospital Brooke Army Medical Center Ft Sam Houston Tex	B	BC	Lec Pan O AV	19	3/14/58	3/16/58	C 3 days	Nil

GASTROENTEROLOGY

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Gastroenterology	Emory University School of Medicine Emory University Atlanta Ga	G	BC	Lec Pan O AV	16	11/ 8/57	11/ 9/57	C 2 days	25
Gastroscopy and Gastroenterology	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SC	Lab Pt Dem LC WR Lec O AV EPP	40	9/ 9/57 11/ 4/57 3/17/58	9/21/57	C 12 days	200
One Week Advanced Course in Gastroscopy and Gastroenterology	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SC	Lab Pt Dem LC WR Lec O AV EPP	25	Arranged		C 6 days	150
Gastroenterology	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SCI	Lab Pt Dem LC WR Lec O AV EPP	20	9/18/57 3/19/58	11/20/57	I 10 sessions 2 hr weekly Wednesdays	100
Gastroenterology	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SCI	Lab Pt Dem LC WR Lec O	60	9/18/57 3/19/58	11/20/57	I 10 sessions 6 hr weekly Wednesdays	100
Gastroenterology	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SC	Lab Pt Dem LC WR Lec O AV EPP	60	10/21/57 4/15/58	11/ 2/57	C 12 days	150
Clinical traineeship in Gastroenterology	University of Kansas Medical Center 39th and Rainbow Blvd Kansas City Ks	G	MT	Lab Pt Dem LC WR Sem Lec O AV	Arranged	Arranged			50 per mo residents of Kansas 100 per mo non residents
Gastroenterology	University of Kansas Medical Center 39th and Rainbow Blvd Kansas City Ks	G	BC	Pt Dem LC WR Sem Lec Pan O AV	14	1/15/58	1/16/58	C 2 days	30
Postgraduate Gastroenterology	American College of Gastroenterology 33 W 60th St New York course at The Somerset Hotel Boston	B	BC	LC Lec	18	10/17/57	10/19/57	C 3 days	35 for members 50 for non members
Gastroenterology for General Physicians	Robert B Howard M D Continuation Medical Education 1342 Mayo Memorial University of Minnesota Minneapolis 14	G	BC	Lec O	15	4/14/58	4/16/58	C 3 days	30
Medicine PM70 Gastroenterology	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Montefiore Hospital New York 67	G	SCI	Pt Dem WR Lec	52½	9/10/57	12/17/57	I 15 sessions 3½ hr weekly Tuesdays	75
Medicine PM73 Advanced Gastroenterology	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Montefiore Hospital New York 67	G	SCI	Pt Dem WR Lec	52½	1/14/58	4/29/58	I 15 sessions 3½ hr weekly, Tuesdays	75
PM45—Medicine Gastroenterology	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Mount Sinai Hospital New York 29	G	SC	LC Lec	35	4/ 7/58	4/11/58	C 5 days	75
Gastroenterology	New York Medical College Flower and Fifth Ave Hospitals Fifth Ave and 106th St New York	C	SCI	Lec	30	Arranged		I 3 weeks	100
Clinical Gastroenterology	New York Polyclinic Hospital 345 W 50th St New York	G	SC	Lab Pt Dem LC WR Lec	60	4/ 1/58	4/30/58	C 24 days	75
M25-A Clinical Gastroenterology	New York University Post Graduate Medical School 550 First Ave New York	G	SC	Pt Dem Lec	35	10/28/57	11/ 1/57	C 5 days	75
M6-A Gastroenterology	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Lec Pt Dem AV O	24	4/ 9/58	5/28/58	I 8 sessions 3 hr weekly Wednesdays	40
Gastroenterology	Rochester General Hospital West Side 801 W Main St Rochester N Y	G	BC	Pt Dem Sem Lec Pan	12	1/22/58	1/23/58	C 2 days	10
Latest Advances in Gastroenterology	American College of Physicians 4200 Pine St Philadelphia 4 course at Duke University School of Medicine Durham N C	S	SC	Lec Pan O AV	35-40	1/58 or 2/58		C 5 days	30 A C P members 60 non members

Diseases of the Liver and Biliary Tract	University of Pennsylvania Graduate School of Medicine 237 Medical Lab Bldg Philadelphia	C	SCI	Lec AV	30	9/20/57	5/1 /58	I 30 sessions 1 hr weekly Thursdays	25
Conference in Gastroenterology	University of Pennsylvania Graduate School of Medicine 237 Medical Lab Bldg Philadelphia	B	SCI	Lab Lec O AV	60	9/26/57	[illegible]/15/58	I 20 sessions 2 hr weekly Thursdays	50
Clinical Gastroenterology	Albert Einstein Medical Center—Northern Division York & Tabor Rd Philadelphia	C	SCI	Lab Pt Dem IC WR Sem Lec Pan O AV FPP	24	11/6/57	2/5/58	I 12 sessions 2 hr weekly	50

GENERAL PRACTICE

(See also Pathology Radiology and All Other Categories)

Regional Postgraduate Institute for West Coast Counties	California Medical Assoc 417 S Hill St Los Angeles course at Golden Bough Theater & La Playa Hotel Carmel Calif	G	BC	Pt Dem Lec Pan O AV	12	3/6/58	3/7/58	C 2 days	20
Regional Postgraduate Institute for San Joaquin Valley Counties	California Medical Assoc 417 S Hill St Los Angeles course at Hotel Californian Fresno Calif	G	BC	Lec Pan O AV	12	3/20/58	3/21/58	C 2 days	20
Regional Postgraduate Institute for North Coast Counties	California Medical Assoc 417 S Hill St Los Angeles course at Hobergs Resort Lake County Calif	G	BC	Lec Pan O AV	12	4/10/58	4/11/58	C 2 days	20
Regional Postgraduate Institute for Sacramento Valley Counties	California Medical Assoc 417 S Hill St Los Angeles course at Tahoe Tavern Lake Tahoe Calif	C	BC	Sem Lec O AV	12	6/19/58	6/20/58	C 2 days	20
North Coast Countie Circuit Course	California Medical Assn 417 S Hill St Rm 538 Los Angeles course at various hospitals and hotels in Eureka Cal Ukiah Cal Napa Cal	G	CC	Pt Dem IC Lec O AV	16 (lecture) 12 (clinic)	10/3/57 10/4/57 10/5/57	3/24/58 3/25/58 3/26/58	4 sessions in autumn 4 in spring Mondays Tuesdays Wednesdays	30
Sacramento Valley Counties Circuit Course	California Medical Assn 417 S Hill St Rm 538 Los Angeles course at various hospitals and hotels in Dunsmuir Cal Chico Cal Marysville Cal Auburn Cal	G	CC	Pt Dem IC Lec O AV	16 (lecture) 12 (clinic)	10/3/57 10/4/57 10/5/57 10/6/57	3/24/58 3/25/58 3/26/58 3/27/58	Four 3¼ hr sessions in autumn 4 in spring Mondays Tuesdays Wednesdays Thursdays	30
Teaching Clinics	University of California Medical Center Los Angeles 24	G	SCI	Sem Lec Pan O AV	24	9/20/57	12/19/57	I 12 sessions 2 hr weekly Thursdays	Unknown
Postgraduate Medical Lecture Series	University of California Medical Center Los Angeles course at St Joseph's Hospital Burbank Cal	C	SCI	Lec Pan O AV	24	9/24/57	12/10/57	I 12 sessions 2 hr weekly Tuesdays	50
Dermatology in General Practice	University of California at Los Angeles Medical Center Los Angeles 24	C	SCI	Pt Dem Lec Pan AV	12	Spring/58		I 6 sessions 2 hr weekly	50
Medicine for General Practitioners	University of California Medical Extension Second and Parnassus Aves San Francisco course at East Oakland Hospital Oakland Calif	C	SCI	Lec	24	9/17/57	12/10/57	I 12 sessions 2 hr weekly Tuesdays	50
Regional Postgraduate Institute for San Bernardino Riverside and Orange Cos	California Medical Assn 417 S Hill St Rm 938 Los Angeles course at Arrowhead Springs Hotel San Bernardino Calif	G	BC	Lec Pan O AV	12	2/13/58	2/14/58	C 2 days	20
Course for Physicians in General Practice	University of California Medical Extension Second and Parnassus San Francisco course at Mount Zion Hospital San Francisco	C	SC	Lec Pan AV	35	3/3/58	3/7/58	C 5 days	Unknown
West Coast Counties Circuit Course	California Medical Assn 417 Hill St Los Angeles courses at various hospitals in San Luis Obispo Cal Santa Maria Cal Santa Barbara Cal	G	CC	LC Lec O AV	14	3/3/58 3 3/ 58	3/24/58 3/25/58 3/26/58	3½ hr weekly for 4 wk at each location	20
Saint John's Hospital Postgraduate Assembly	Saint John's Hospital John C Fagan MD Director Postgraduate Assembly 1328 22nd St Santa Monica Cal	G	BC	Pt Dem WR Sem Lec Pan O	28	9/12/57	9/14/57	C 3 days	Nil
Prevention and Management of Athletic Injuries	University of Colorado Medical Center 4200 E Ninth Ave Denver 20	G	BC	Lec Pan	24	9/9/57	9/11/57	C 3 days	30
General Practice Review	University of Colorado School of Medicine 4200 E Ninth Ave Denver 20	G	SC	Pt Dem Lec Pan O AV	45	1/13/58	1/18/58	C 6 days	60

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GENERAL PRACTICE—*Continued*

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Ninth Annual Colorado Intern Resident Clinics	University of Colorado Medical Center 4200 E Ninth Ave, Denver	B	BC	Pt Dem LC Lec Pan	16	5/58	5/58	C 2 days	Nil
Colorado Medical Alumni Clinics	University of Colorado School of Medicine 4200 E Ninth Ave Denver	B	BC	Lec Pan	8	6/58	6/58	C 1 day	Nil
Summer School of Alcohol Studies	Yale University Summer School of Alcohol Studies 52 Hillhouse Ave Yale Station New Haven Conn	G	SC	Pt Dem Sem Lec Pan O AV	74	7/ 1/58	7/24/58	C 22 days	Unknown
Principles of Medical Operations in Nuclear Warfare	Department of the Army Office of the Surgeon General Education and Training Division Washington 25 D C course at Walter Reed Army Medical Center Washington D C	O (Selected Staff Officers)	SC	Lab Sem Lec Pan O AV TV	200	9/ 3/57	10/ 5/57	C 25 days	Nil
Management of Mass Casualties	Department of the Army Office of the Surgeon General Education and Training Division Washington 25 D C course at Walter Reed Army Institute of Research Walter Reed Army Medical Center	G	SC	Lec Pan O AV TV	44	9/ 9/57 12/ 2/57 3/24/58 5/12/58	12/ 2/57	C 6 days	Nil
Medico Military Application Course for Nuclear Medical Officer	Department of the Army Office of the Surgeon General Education and Training Division Washington 25 D C course at Walter Reed Army Medical Center Washington D C	O (Selected Staff Officers)	SC	Lab Sem Lec Pan O AV TV	240	3/24/58	5/ 2/58	C 30 days	Nil
26th Annual Graduate Short Course	Division of Postgraduate Education College of Medicine University of Florida Gainesville Fla course at place to be determined	G	SC	Lec Pan O AV	30	6/23/58	6/27/58	C 5 days	10
8th Annual Postgraduate Seminar	R E Drosd M D Mount Sinai Hospital 4300 Alton Rd Miami Fla	B	BC	Sem Lec Pan O AV	24	11/22/57	11/25/57	C 4 days	20
Medicine for Today	Illinois Academy of General Practice 14 E Jackson Blvd Chicago 4 course at Alton Belleville Swedish Covenant Hospital South Chicago Community Hospital Illini Union Building Chicago Chicago Heights East St Louis Effingham Elmhurst Geneva Herrin Hinsdale Joliet Moline Mount Carmel Mount Vernon Centralia Oak Park Peoria Rockford Springfield	G	CC	Lec O AV	24	9/ 8/57 3/31/58	10/18/57	12 sessions 2 hr each	40 for members 80 for non members
General Medicine with Special Reference to Cardiovascular Renal Respiratory Diseases and the Alimentary Tract	Chicago Medical Society 86 E Randolph St Chicago course at Knickerbocker Hotel Chicago	G	SC	Lec Pan O	32½	11/ 4/57	11/ 8/57	C 5 days	75
Obstetrics Gynecology and Pediatrics	Chicago Medical Society 86 E Randolph St Chicago course at Knickerbocker Hotel Chicago	G	SC	Lec Pan O	32½	11/11/57	11/15/57	C 5 days	75
General Medicine	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SCI	Pt Dem LC WR Lec O EPP	20	9/18/57 3/19/58	11/20/57	I 10 sessions 2 hr weekly Wednesdays	100
Clinical Pathological Conference	Indiana University School of Medicine 1100 W Michigan Indianapolis	G	SCI	Pan O AV	100	9/ 3/57	8/28/58	I 50 sessions 2 hr weekly Thursdays	Varies
Refresher Course for the General Physician	State University of Iowa College of Medicine University Hospitals Iowa City	G	BC	Pt Dem Lec Pan O AV	21 25	2/18/58	2/21/58	C 4 days	50 (Members of the Iowa Academy of General Practice 5)
Kansas Circuit Course in General Medicine and Surgery	University of Kansas School of Medicine course at St Joseph s Hospital Concordia Ks Riley County Hospital Manhattan Ks Country Club Colby Ks Grace Hospital Hutchinson Ks William Newton Memorial Hospital Newton Ks St Anthony Hospital Hays Ks Trinity Hospital Dodge City Ks Newman Memorial Hospital Emporia Ks	G	CC	Pt Dem LC Lec Pan O AV	33 at each location	12/ 3/57 12/ 3/57 12/ 4/57 12/ 4/57 12/ 5/57 12/ 5/57 12/ 6/57 12/ 6/57	4/25/58	5½ hr one day a mo afternoon and evening for 6 mos	30

General Medicine and Surgery	University of Kansas Medical Center 39th and Rainbow Blvd Kansas City Ks	G	SCI	Pt Dem Lec Pan O AV	24	11/21/57	4/17/58	I 6 sessions 4 hr weekly Thursdays	20 non members K C or Wyandotte Academies 10 members
School Health Conference	University of Kansas Medical Center 39th and Rainbow Blvd Kansas City Ks	G	BC	Sem Lec Pan O	8	10/10/57	10/10/57	C 1 day	Nil
Review for Practitioners of Medicine	Louisiana State University School of Medicine 1542 Tulane Ave New Orleans course at Confederate Memorial Hospital Shreveport La	G	SCI	Pt Dem LC Sem Lec Pan O AV	120	9/ 4/57	5/28/58	I 18 sessions 8 hr every second Wednesday or Thursday	Unknown
Practitioners Course	University of Michigan Medical School Department of Postgraduate Medicine Ann Arbor Mich course at 17 centers in the State of Michigan (information not provided)	C	CC	Pt Dem Lec AV	Unknown	10/57	10/57	2 days in each center—1 in spring and 1 in fall	Nil
Symposium on Medicine	F P Rhoades M D Chairman Educational Program Comm Wayne County Academy of General Practice 9 0 Maccabees Bldg Detroit course at Sheraton Cadillac Hotel Detroit	G	BC	Sem Lec Pan O AV	2	9/11/57	9/11/57	C 1 day	Nil
Annual Refresher	James A Blake M D Ex Sec Minnesota Academy of General Practice 15 Ninth Ave So Hopkins Minn course at hotel	G	BC	Lab Pt Dem LC Sem Lec Pan O AV	10	10/15/57	10/16/57	C 2 days	Unknown
Semi Annual Postgraduate Extension Course—Anesthesiology and other Subjects	Department of Continuation Medical Education University of Minnesota Hospitals University of Minnesota Medical School 412 Delaware Minneapolis course at several points throughout the state	G	SCI	Sem Lec O	Arranged	Arranged		I 10 2 hr lectures	25 for entire series
A Morris Ginsberg M D Annual Memorial Lecture	Menorah Medical Center 4949 Rockhill Rd Kansas City Mo	S	BC	Lab Pt Dem LC WR Sem Lec Pan O AV FPI	12	Fall/57	Fall/57	C 3 days	Nil
Postgraduate Seminar with Round Table Discussions	The University of Mississippi Medical Center 2500 N State St Jackson Miss	C	BC	WR Sem Lec Pan O AV	6	1/22/58	1/22/58	C 1 day	Nil
Sixth Annual Spring Postgraduate Assembly—Recent Advances in Medicine	University of Nebraska College of Medicine 42nd and Dewey Omaha	C	BC	Pt Dem WR Sem Lec Pan O AV	18	4/ 9/58	4/11/58	C 3 days	10 per day
Third Annual Trauma Day	University of Nebraska College of Medicine 42nd and Dewey Omaha	G	BC	Sem Lec Pan O AV	6	5/ 7/58	5/ 7/58	C 1 day	10
The Management of Abdominal Disease	Albany Medical College 47 New Scotland Ave Albany 8 N Y	G	SCI	Pt Dem LC Sem O AV	27	10/31/57	12/12/57	I 6 sessions 4½ hr weekly Thursdays	15 a day or 60 for course
Two Way Radio Conferences—Albany Medical College to Area Hospitals	Albany Medical College 47 New Scotland Ave Albany 8 N Y	C	CC(R)	Lec O Closed circuit Two Way Radio	24	11/ 1/57	5/ 2/58	1 hr weekly for 24 sessions	Nil
Obstetric Pediatric Refresher Course	Albany Medical College 47 New Scotland Ave Albany 8 N Y	G	SCI	Pt Dem LC WR Sem O	28	3/19/58	5/ 7/58	I 8 sessions 3½ hr weekly Wednesdays	40
Clinical Refresher Course—Choice of Subject	Albany Medical College 47 New Scotland Ave Albany 8 N Y	G	SO	Pt Dem LC WR	Arranged	Arranged		C Arranged	60 for each 5 days
Postgraduate Course in General Practice	University of Buffalo School of Medicine 3435 Main St Buffalo	G	SC	Pt Dem LC WR Sem Lec Pan O AV	39	9/16/57	9/21/57	C 6 days	70
Management of Infections	University of Buffalo School of Medicine 3435 Main St Buffalo	C	BC	Sem Lec Pan O	14	10/ 2/57	10/ 3/57	C 2 days	30
Occupational Medicine and Surgery	University of Buffalo School of Medicine 3435 Main St Buffalo	G	BC	Pt Dem LC WR Sem Lec Pan O AV	14	10/10/57	10/11/57	C 2 days	30
Management of Trauma	University of Buffalo School of Medicine 3435 Main St Buffalo	G	BC	Pt Dem Sem Lec Pan O AV	14	1/ 8/58	1/ 9/58	C 2 days	40
Postgraduate Medical Seminars	Glens Falls Hospital 100 Park St Glens Falls N Y	G	SCI	Pt Dem WR Sem Lec Pan O AV	24	9/ 1/57	6/30/58	I 8 sessions 3 hr weekly Thursdays	Nil
Psychotherapy in Everyday Practice	Meadowbrook Hospital Carman Ave and Bethpage Turnpike Hempstead N Y	G	SCI	Sem Lec Pan	15	10/ 2/57	12/ 4/57	I 10 sessions 1½ hr weekly Wednesdays	35
Infertility	Joint Committee on Postgraduate Education 1313 Bedford Ave Brooklyn N Y course at Cumberland Hospital Brooklyn N Y	C	SCI	Lec	16	10/57 4/58	12/57	I 8 sessions 2 hr weekly Thursdays	30
Postgraduate Radio Program	The New York Academy of Medicine Two E 103rd St New York 29	G	HS(R)	Lec Pan	52	9/57	9/58	I 52 sessions 1 hr weekly Thursdays	Nil

Key will be found on page 1774

GENERAL PRACTICE—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Postgraduate Week—Research Contributions to Clinical Practice	The New York Academy of Medicine 2 E 103rd St New York 29	G	SC	Sem Lec Pan AV	20	10/ 7/57	10/11/57	C 5 days	10
Monthly Panel Meetings on Therapeutics for the General Physician	The New York Academy of Medicine 2 E 103rd St New York 29	G	SCI	Pan	Approx 10	11/12/57	4/ 8/58	I 6 sessions 1½-1¾ hr monthly Tuesdays	Nil
Postgraduate course in the contagious and communicable diseases	New York Medical College Fifth Ave at 106th St New York 29	B	SCI	Lab Pt Dem WR Sem Lec	120	11/ 6/57	5/28/58	I 30 days	300
Comprehensive Course in Medicine	New York Polyclinic Hospital 345 W 50th St New York	B	SC	Lab Pt Dem LC WR S Sem Lec O AV TV	1260	9/57	6/58	C 180 days	800
Course for General Practitioners	New York Polyclinic Hospital 345 W 50th St New York	G	SC	Lab Pt Dem LC WR S Lec O AV	132	4/ 1/58	4/30/58	C 30 days	100
Proctology Gastroenterology with Operative Proctology (Cadaver) and Colorectal Surgery	New York Polyclinic Hospital 345 W 50th St New York	G	SC	Lab Pt Dem LC WR S Sem Lec AV	150	4/ 1/58	5/12/58	C 36 days	200
Clinical Proctology and Gastroenterology (Combined Course)	New York Polyclinic Hospital 345 W 50th St New York	G	SC	Lab Pt Dem LC WR Lec AV	100	4/ 1/58	5/12/58	C 36 days	100
555-A Electronics for Physicians	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Lec Dem AV O	15	9/ 3/57	11/12/57	I 10 sessions 1½ hr weekly Tuesdays	75
747-A What's New for the Physician in Medicine Pediatrics Psychiatry and Dermatology	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Pt Dem LC Lec Pan	102	9/17/57	5/27/58	I 34 sessions 3 hr weekly Tuesdays	300
434 A Review Course in General Medicine	New York University Post Graduate Medical School 550 First Ave New York	G	SC	Pt Dem LC WR Sem Lec	70	7/ 8/58	7/19/58	C 10 days	125
Recent Advances in Medicine	Rochester General Hospital West Side 501 W Main St Rochester N Y	C	BCI	Lab LC Lec	8	3/ 6/58	3/27/58	I 4 sessions 2 hr weekly Thursdays	10
Trauma	State University of New York Upstate Medical Center 766 Irving Ave Syracuse N Y	B	BC	Lec Pan O AV	6	Spring/58		C 1 day	Unknown
Asheville Postgraduate Medical Course	Office of Continuation Education University of North Carolina School of Medicine Chapel Hill N C course at Memorial Mission Hospital Asheville N C	B	SCI	Lec O	18	9/19/57	10/31/57	I 6 sessions 3 hr weekly Thursdays	20
Morganton Postgraduate Medical Course	Office of Continuation Education University of North Carolina School of Medicine Chapel Hill N C course at Grace Hospital Morganton N C	B	SCI	Lec O	18	9/18/57	10/30/57	I 6 sessions 3 hr weekly Wednesdays	20
Postgraduate Course in Obstetrics and Pediatrics	Bowman Gray School of Medicine Winston Salem N C	G	BC	Sem Lec O AV	21	Spring/58		C 3 days	Nil
Marriage Counselling by the General Physician	Dr H W Neumann Southwestern Ohio Society of General Physicians Seminar Series 1122 Carew Tower Cincinnati course at University of Cincinnati College of Medicine Cincinnati	C	BCI	Lec Pan O AV	10	10/10/57	10/31/57	I 4 days	10
Symposium on Selected Medical and Neurological Problems	Ohio Academy of General Practice 209 S High St Columbus Ohio course at Netherland Plaza Hotel Cincinnati	G	BC	Sem Pan O	6	2/23/58	2/23/58	C 1 day	Nil
Review of advances in the specialties as they apply to General Practice	Frank E Bunts Educational Institute (Cleveland Clinic Foundation) 2020 E 93rd Street Cleveland	G	BC	Pt Dem Sem Lec Pan O AV	10	2/ 5/58	2/ 6/58	C 2 days	20
Annual Postgraduate Seminar	Huron Road Hospital 13951 Terrace Rd Cleveland 12	B	BC	Sem Lec O	17	Spring/58		C 2 days	20
Medical and Surgical Emergencies	Ohio Academy of General Practice 209 S High St Columbus Ohio course at Commodore Perry Hotel Toledo Ohio	G	BC	Sem Pan O	6	11/20/57	11/20/57	C 1 day	Nil
Postgraduate Course in Clinical Medicine	Commission on Graduate Education Pennsylvania Medical Society 30 State St Harrisburg Pa course at Selected Hospitals	G	SCI	Lab Pt Dem LC WR Sem Lec Pan O EPP	60-90	Fall/57	Spring/58	I 10-15 sessions 6 hr weekly Thursdays	60
New Knowledge in Medicine and Surgery	Commission on Graduate Education The Medical Society of the State of Pennsylvania 30 State St Harrisburg Pa course at U S Veterans Hospital Pittsburgh	G	SCI	Lab Pt Dem LC Sem Lec Pan O AV	80	3/ 6/58	5/ 8/58	I 10 sessions 8 hr weekly Thursdays	60

Advances in Medicine and Surgery	Graduate School of Medicine University of Pennsylvania Philadelphia	B	SC	Sem Lec Pan O AV	Unknown	9/16/57	9/21/57	O 5 days	75 Non Alumni 50 Alumni 20 Incoming Students
The Jefferson Graduate Assembly	The Jefferson Medical College 1025 Walnut St Philadelphia	G	BC	Pt Dem LC Lec Pan AV	18	2/5/58	2/7/58	O 3 days	15
1st Postgraduate Course in Psychosomatic Medicine	Temple University Medical Center 3401 N Broad St Philadelphia 40	B	SCI	Pt Dem LC Sem Lec Pan O EPP	80	10/2/57	2/26/58	I 20 days	40
Refresher Course for General Practitioners	Albert Einstein Medical Center Northern Division York & Tabor Roads Philadelphia	G	SCI	Pt Dem LC WR Sem Pan AV	90	3/5/58	7/11/58	I 15 sessions 6 hr weekly Wednesdays	50
Management of Mass Casualties	Department of the Army Office of the Surgeon General Education and Training Division Washington 25 D C course at Army Medical Service School Brooke Army Medical Center Ft Sam Houston Tex	G	SC	Sem Lec Pan O AV	40	9/23/57 11/18/57 2/24/58 3/24/58 6/2/58	9/27/57	O 5 days	Nil
Sixth Postgraduate Conference in Medicine and Surgery	University of Texas Postgraduate School of Medicine 213 West Avenue G Temple Tex course at Scott and White Memorial Hospitals Scott Sherwood and Brindley Foundation Temple Tex	G	BO	Lab Pt Dem LC Sur Sem Lec Pan O AV	27	3/3/58	3/5/58	O 3 days	15
Postgraduate Course in General Practice	Arlington Hospital 5129-16th St North Arlington Va	G	SCI	Lec	8	1/8/58	2/20/58	I 8 sessions 1 hr weekly Wednesdays	Nil
Advances in Therapy	University of Virginia Charlottesville Va	G	BCI	Sem Lec Pan	6 to 7	11/57 given 3 times yr		I 1 day	Unknown
Circuit Teaching Program—Reviews in General Practice	State Medical Society of Wisconsin and Wisconsin Medical Schools course at Lancaster Racine and Oconomowoc Wis Janesville Dells Stevens Pt Wis Monroe Viroqua Chippewa Falls Wis Madison Appleton Sheboygan Wis	G	CC	Lec O AV	5	9/10/57 10/15/57 11/5/57 1/21/58	9/12/57 10/17/57 11/7/57 1/23/58	5 hr one day at each location	10
Jackson Clinic—Marquette Postgraduate Program	Jackson Clinic 30 S Henry St Madison Wis	G	BC	Pt Dem Lec Pan O	4	9/28/57	9/28/57	C 1 day	Nil
Postgraduate Course in General Practice	Dr Robert O Parkin Assistant to the Dean University of Wisconsin Medical School 418 N Randall Ave Madison Wis	G	BC	Pt Dem LC Lec O	18	2/18/58	2/20/58	C 3 days	25
Annual General Practice Symposium	Wisconsin Academy of General Practice 758 N 27th St Milwaukee course at Hotel Schroeder Milwaukee	G	BC	Lec Pan O	0	6/6/58	6/6/58	C 1 day	Nil

GERIATRICS

Graduate Symposium on Geriatric Medicine	American Geriatrics Society 25 Mechanic St Wakefield Rhode Island course at Waldorf Astoria Hotel New York 22	G	BC	Pt Dem Lec Pan O AV	16	11/7/57	11/8/57	O 2 days	Nil
Geriatrics Conference	University of Nebraska College of Medicine 42nd and Dewey Omaha	G	BC	Sem Lec Pan O	9	12/6/57	12/7/57	O 1½ days	15

GYNECOLOGY

(See also Pathology and Surgery)

Gynecological Pathology Review	Baptist Memorial Hospital 800 Miami Road Jacksonville Fla	S	BCI	Lab Lec O AV	9	3/7/58	5/2/58	I 6 sessions 1¼ hr weekly Wednesdays	Nil
Practical and Didactic Course in Office Gynecology	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	BCI	Lab Pt Dem LC WR Lec O EPP	16	9/4/57 11/6/57 1/8/58 2/26/58 4/30/58	9/25/57	I 4 sessions 4 hr weekly Wednesdays	100
Course II in Office and Operative Gynecology	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SC	Lab Pt Dem LC WR Sur Lec O AV EPP	91	9/10/57 10/21/57 2/10/58 3/10/58 4/7/58 6/16/58	9/28/57	O 13 days	150
Gynecology	University of Kansas Medical Center 39th and Rainbow Blvd Kansas City Ks	G	BO	Pt Dem LC Lec Pan O AV TV	18	11/4/57	11/6/57	C 3 days	35
Gynecology for Specialists	Tulane University School of Medicine 1430 Tulane Ave New Orleans	S	SC	Pt Dem WR Sem Lec Pan	40	7/58	7/58	O 5 days	Unknown

Key will be found on page 1774

GYNECOLOGY—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Gynecology Oncology and Female Urology	University of Maryland School of Medicine 522 W Lombard St Baltimore 1	G	SC	LC WR Lec	Unknown	Arranged		C 10 wk	125
Gynecology 3	Harvard Medical School Courses for Graduates 25 Shattuck St Boston course at Massachusetts General Hospital Boston	G	SC	Lab Pt Dem LC, Lec AV	78	9/ 9/57	9/20/57	C 11 days	150
Gynecology 2	Harvard Medical School Courses for Graduates 25 Shattuck St Boston course at Free Hospital for Women Boston	G	SC	Lab Pt Dem LC WR Lec AV	120-130	Arranged		Arranged	150 a mo
Gynecology for Specialists	Robert B Howard M D Continuation Medical Education 1342 Mayo Memorial University of Minnesota Minneapolis 14	S	BC	Lec O	15	3/20/58	3/22/58	C 3 days	30
Gynecology	University of Buffalo School of Medicine 3435 Main St Buffalo	G	BC	Pt Dem LC WR Sur Sem Lec Pan O AV	14	11/ 6/57	11/ 7/57	C 2 days	30
Office Gynecology	Meadowbrook Hospital Carman Ave and Bethpage Turnpike Hempstead N Y	G	SCI	Pt Dem LC WR Sem Lec Pan	6	10/17/57	11/21/57	I 6 sessions 1 hr weekly Thursdays	10
Office Gynecology	Joint Committee on Postgraduate Education 1313 Bedford Ave Brooklyn N Y course at Jewish Hospital Brooklyn N Y	G	SCI	Lec	10	10/57	12/57	I 10 sessions twice weekly Mondays Thursdays	20
567 A Gynecological Endocrinology	New York University Post Graduate Medical School 550 First Ave New York	G	SC	Lab Pt Dem LC Lec	35	10/ 7/57 4/ 7/58	10/11/57	C 5 days	125
568 A Gynecological Cytology (for Specialists)	New York University Post Graduate Medical School 550 First Ave New York	S	SCI	Lab Lec	32	10/ 1/57	11/21/57	I 16 sessions 1 hr Tuesdays and 3 hr Thursdays	100
566 A Culdoscopy	New York University Post Graduate Medical School 550 First Ave New York	G	BCI	Pt Dem Lec	6	11/25/57 1/27/58 4/28/58	11/29/57	I 2 hr thrice weekly Mondays Wednesdays Fridays	55
Gynecology	State University of New York Upstate Medical Center 766 Irving Ave Syracuse N Y	G	SC	WR Lec Pan O AV	40	4/21/58	4/25/58	C 5 days	25

HEMATOLOGY

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Physiological Basis of Hematology	City of Hope Medical Center 1500 E Duarte Rd Duarte Cal	G	BC	Lab Pt Dem LC Lec Pan O AV	19¼	11/20/57	11/22/57	C 3 days	10 per day or 25 for entire course
Recent Advances in Clinical Hematology	University of California Medical Center Los Angeles 24	G	BC	Lec Pan O AV	Unknown	Fall/57	Unknown	C 1½ days	Unknown
Clinical Hematology	University of Colorado School of Medicine 4200 E Ninth Ave Denver 20	B	SC	Lab AV	18	7/58	7/58	C, 6 days	100
Clinical Hematology	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SCI	Lab Pt Dem LC, WR Lec O	20	3/19/58	5/21/58	I 10 sessions 2 hr weekly Wednesdays	100
Hematology	Cook County Graduate School of Medicine 707 S Wood St Chicago	Unknown	SC	Lab Pt Dem LC WR Lec O AV EPP	30	6/16/58	6/20/58	C 5 days	100
Anemia, Thrombocytopenic Purpura Lymphomes Acute & Chronic Leukemias	Indiana University School of Medicine 100 W Michigan Indianapolis	G	BC	Lec Pan O AV	8	5/14/58	5/15/58	C 2 days	10
Clinical Hematology	Indiana University School of Medicine 1100 W Michigan St Indianapolis	G	SCI	Lab Pt Dem LC WR O EPP	24	Arranged		I 12 sessions arranged Thursdays	30
Clinical Traineeship in Hematology	University of Kansas Medical Center 39th and Rainbow Blvd Kansas City Ks	G	MI	Lab Pt Dem LC WR Sur Sem Lec O AV	Approx 120	11/ 1/57 2/ 1/58 3/ 1/58	11/30/57	Approx 30 days	50 per mo for residents of Kansas 100 per mo for non residents
Hematology	Tufts University School of Medicine Postgraduate Division 171 Harrison Ave Boston	G	BC	Pt Dem Lec Pan AV	14	4/10/58	4/12/58	C 3 days	20
Blood Dyscrasias	F P Rhoads M D Michigan Academy of General Practice 970 Maccabees Bldg Detroit course at Sheraton Cadillac Hotel Detroit	G	BC	Sem Lec Pan O AV TV	12	3/ 5/58	3/ 6/58	C 2 days	Nil

Diseases of the Blood and Blood forming Organs	University of Michigan Medical School Department of Postgraduate Medicine University Hospital Ann Arbor Mich	G	SC	Lab Pt Dem Lec O AV	30	4/7/58	4/11/58	C 5 days	50
Medicine PM60 Clinical Hematology	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Montefiore Hospital New York 67	G	SCI	Lab WR Lec	34	9/10/57 1/28/58	1/21/58	I 18 sessions 3 hr weekly Tuesdays	7
Medicine PM67 Advanced Hematology	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Montefiore Hospital New York 67	G	SCI	Lab IC Sem Pt Dem EPP	34	9/17/57 2/4/58	1/7/58	I 17 sessions 2 hr weekly Tuesdays	75
IM31 Clinical Hematology	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Mount Sinai Hospital New York 29	G	SCI	Lab Pt Dem Lec	24	10/29/57	12/17/57	I 8 sessions 3 hr weekly Tuesdays	50
IM30 Hematology Laboratory Methods	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Mount Sinai Hospital New York 29	G	SC	Lab EPP	64	2/24/58	3/20/58	C 16 days	200
PM32 Hematology Lab Methods in Blood Banks	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Mount Sinai Hospital New York 29	G	SCI	Lab	24	4/1/58	5/6/58	I 6 sessions 4 hr weekly Tuesdays	50
Hematology	New York Medical College Flower and Fifth Ave Hospitals Fifth Ave and 106th St New York	G	SCI	Lab	20	Arranged		I 8 sessions 2½ hr weekly Tuesdays	50
119A Hematology	New York University Post Graduate Medical School 550 First Ave New York	G	SO	Lab Lec	35	11/11/57	11/15/57	C 5 days	85
120A Clinical Hematology	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Lab Lec	20	4/8/58	5/29/58	I 16 sessions 1 1½ hr twice weekly Tuesdays and Thursdays	45
Current Trends in Hematology	Frank E Bunts Educational Institute (Cleveland Clinic Foundation) 2020 E 93rd Street Cleveland	G	BC	Pt Dem Sem Lec Pan O AV	12	10/23/57 Repeated on demand	10/24/57	2 days	90
Hematology Conference	University of Pennsylvania Graduate School of Medicine 237 Medical Lab Bldg Philadelphia	G	SCI	Pt Dem Lec	12	9/24/57	12/10/57	I 12 sessions 1 hr weekly Tuesdays	90
Clinical Hematology	University of Pennsylvania Graduate School of Medicine 237 Medical Lab Bldg Philadelphia	G	SCI	Lec AV	12	9/28/57	12/14/57	I 12 sessions 1 hr weekly Saturdays	90
Hematology	Albert Einstein Medical Center Northern Division York & Tabor Rds Philadelphia	G	SCI	Pt Dem LC WR Sem Pan O AV	30	2/15/58	4/26/58	I 10 sessions 3 hr weekly Fridays	35
Diseases of Blood and Blood Forming Organs	University of Tennessee College of Medicine 62 S Dunlap Memphis Tenn	G	BO	Pt Dem WR Lec Pan O AV	24	11/6/57	11/8/57	C 3 days	50

INTERNAL MEDICINE

(See also Anesthesiology Basic Sciences Cardiovascular Disease Electrocardiography Endocrinology Gastroenterology Hematology Neurology Orthopedic Surgery Peripheral Vascular Disease Physical Medicine & Rehabilitation Pulmonary Disease and Radiology)

Impact of Newer Drugs Upon the Central Nervous System	City of Hope Medical Center 1500 E Duarte Rd Duarte Cal	G	BC	Lec Pan O AV	13	2/10/58	2/11/58	C 2 days	10 per day or 15 for entire course
Arthritis and Rheumatism	University of California Medical Center Los Angeles 24	G	BC	Lec	21	Fall/57	Unknown	C 3 days	Unknown
Endocrinology and Metabolism	University of California Medical Center Los Angeles 24	G	BC	Lec AV	Unknown	10/11/57	10/12/57	C 2 days	Unknown
552 Bedside Clinics in Internal Medicine	University of Southern California School of Medicine Post Graduate Division 2025 Zonal Ave Los Angeles course at Los Angeles County Hospital Los Angeles	G	SCI	Pt Dem IC WR Lec Pan	24	10/10/57	1/16/58	I 12 sessions 2 hr weekly Thursdays	65
Latest Advances in Internal Medicine	American College of Physicians 4200 Pine St Philadelphia 4 course at University of Southern California School of Medicine Los Angeles 33	S	SC	WR Lec Pan O AV	35 40	2/17/58	2/21/58	C 5 days	30 ACP members 60 non members
Internal Medicine	University of California Medical Center Second and Parnassus Aves San Francisco	G	SC	Pt Dem WR Lec Pan O	42	9/16/57	9/21/57	C 6 days	20 per day or 100 for entire course

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INTERNAL MEDICINE—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Postgraduate Medicine Series—Sacramento	University of California Medical Extension 2nd and Parnassus Ave San Francisco course at Mercy Hospital Sacramento Cal	G	BCI	Lec	6	9/25/57	11/20/57	I 3 sessions 2 hr weekly Wednesdays	15
Present Concepts in Internal Medicine	Department of the Army Office of the Surgeon General Education and Training Division Washington 25 D C course at Letterman Army Hospital San Francisco	G	SC	Pt Dem LC Sem Lec Pan O AV	35	10/28/57	11/ 2/57	C 5 days	Nil
A Series of Postgraduate Medical Programs	U S Veterans Administration Hospital Fort Miley 42nd Ave and Clement St San Francisco 21	G	SCI	Lab Pt Dem, LC Lec Pan	12	4/58	5/58	I 6 sessions 2 hr weekly Tuesdays	Unknown
Latest Advances in Internal Medicine	American College of Physicians 4200 Pine St Philadelphia 4 course at University of California School of Medicine San Francisco	S	SC	Lec Pan O AV	40	6/16/58	6/20/58	C 5 days	30 A C P members 60 non members
Patho Physiology of Renal Disease	University of Colorado School of Medicine 4200 E Ninth Ave Denver 20	B	SCI	Sem Lec	15	9/57	12/57	I 1½ hr once weekly for 11 wks	10
General Applied Medical Science	Office of Postgraduate Medical Education University of Colorado School of Medicine 4200 E Ninth Ave Denver 20 course at Fitzsimons Army Hospital Denver 20	G	SCI	Sem	Unknown	9/57	4/58	I 1 hr weekly for 8 mo Thursdays	10
Cardiac Physiology and Gastrointestinal Disease	University of Colorado School of Medicine 4200 E Ninth Ave Denver 20	B	SCI	Sem Lec	Unknown	4/58	6/58	I once weekly for 12 wks	10
Advances in Medicine as Related to Current Research	New England Institute for Medical Research Grove St Ridgefield Conn	B	SCI	Lab Sem Lec O	12	10/17/57	11/21/57	I 6 sessions 2 hr weekly Thursdays	15
Diabetes	Florida State Board of Health—Bureau of Special Health Services P O Box 210 Jacksonville Fla course at University of Florida Medical School Gainesville Fla	G	BC	Sem Lec Pan O AV	15	Oct/57		C 2 days	Nil
Seminar on Diabetes Mellitus	University of Florida College of Medicine J Hillis Miller Health Center Gainesville Fla	B	BC	Lec Pan O AV	10	10/57	10/57	C 2 days	10
Professor Pro Tempore in Medicine	Mount Sinai Hospital of Greater Miami 4300 Alton Rd Miami Beach Fla	B	MT	Pt Dem LC WR Lec Pan O AV	18	9/57 (2nd wk)	end of wk	6 sessions 3 hr each	Nil
Renal Disease in Internal Medicine	Emory University School of Medicine Atlanta Ga	G	BC	Lec Pan O AV	Approx 16	3/58		C 2 days	25
Asthma Hay Fever and Allied Diseases	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SC	Lab Pt Dem LC WR Lec O AV EPP	140	1st Monday of each mo	4 wk later	C 24 days	200
Asthma Hay Fever and Allied Diseases	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SC	Lab Pt Dem LC WR Lec O AV EPP	500	Arranged		C 6 mo full time	500
The Diagnosis and Treatment of Congenital and Rheumatic Heart Disease in Infants and Children	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SCI	Lab Pt Dem LC WR Lec O	24	9/18/57 3/19/58	12/ 4/57	I 12 sessions 2 hr weekly Wednesdays	100
Clinical Medicine at the Bedside	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SCI	Lab Pt Dem, LC WR Lec O	20	9/18/57 3/19/58	11/20/57	I 10 sessions 2 hr weekly Wednesdays	100
Arthritis	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SCI	Lab Pt Dem, LC WR Lec O	20	9/20/57 3/21/58	11/22/57	I 10 sessions 2 hr weekly Fridays	100
Course II In General Review of Internal Medicine	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SC	Lab Pt Dem LC WR Lec O AV EPP	80	9/23/57 4/28/58	10/ 5/57	C 12 days	125
Differential Diagnosis	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SCI	Lab Pt Dem LC WR Lec O	20	3/19/58	5/21/58	I 10 sessions 2 hr weekly Wednesdays	100
Diabetes Mellitus	Indiana University School of Medicine 1100 W Michigan St Indianapolis	G	BC	Lec Pan O AV	8	4/16/58	4/17/58	C 2 days	10
Internal Medicine	University of Kansas Medical Center 39th and Rainbow Blvd Kansas City Ks	G	BC	Pt Dem LC WR Sem Lec Pan O AV	28	11/11/57	11/14/57	C 4 days	50
Cardiac Auscultation	University of Kansas Medical Center 39th and Rainbow Blvd Kansas City Ks	G	BC	Pt Dem Sem Lec Pan O AV EPP	14	3/17/58	3/18/58	C 2 days	50
Topics in Clinical Medicine	Johns Hopkins Hospital 601 N Broadway Baltimore	B	SC	Lab Pt Dem LC WR Lec Pan O AV	40	5/12/58	5/18/58	C 5½ days	100
Review of Recent Advances in Internal Medicine	American College of Physicians 4200 Pine St Philadelphia 4 course at New England Center Hospital Boston	S	SC	Lec Pan O AV	40-45	10/28/57	11/ 2/57	C 5½ days	30 A C P members 60 non members

Diabetes and Endocrinology in Relation to General Medicine	Harvard Medical School Courses for Graduates 25 Shattuck St Boston course at New England Deaconess Hospital Boston	C	BC	Pt Dem Lec	21	9/ 9/57	9/11/57	C 3 days	30
Thyroid Disease and the Use of Radioactive Iodine	Harvard Medical School Courses for Graduates 25 Shattuck St Boston course at Massachusetts General Hospital and Beth Israel Hospital Boston	S	SC	Lab Pt Dem LC Lec	140	7/ 7/58	8/ 1/58	C 20 days	300
Internal Medicine 3	Harvard Medical School Courses for Graduates 25 Shattuck St Boston course at Massachusetts General Hospital Boston	G	SC	Pt Dem Lec Pan O	180	6/16/58	7/26/58	C 36 days	250
Review of Recent Advances in Internal Medicine	Tufts University School of Medicine Postgraduate Division 171 Harrison Ave Boston	S	SC	Pt Dem Lec Pan AV	40	10/28/57	11/ 2/57	C 5½ days	50
Fluid and Electrolyte Disturbances	Tufts University School of Medicine Postgraduate Division 171 Harrison Ave Boston	G	BC	Pt Dem Lec Pan AV	11	1/ 9/58	1/11/58	C 3 days	20
Clinical Internal Medicine	University of Michigan Medical School Department of Postgraduate Medicine University Hospital Ann Arbor Mich	G	SCI	Pt Dem Sem Lec O AV	67	10/ 3/57	3/13/58	I 21 sessions 3½ hr weekly Thursdays	65
Postgraduate Seminars	Highland Park General Hospital 369 Glendale Highland Park Mich	G	SCI	LC Sem Lec AV	20	10/15/57	3/15/58	I 20 sessions 1 hr weekly	Nil
Metabolism and Endocrinology	University of Michigan Medical School Department of Postgraduate Medicine University Hospital Ann Arbor Mich	G	SC	Pt Dem Lec O AV	30	3/31/58	4/ 4/58	C 5 days	50
Recent Advances in Therapeutics	University of Michigan Medical School Department of Postgraduate Medicine University Hospital Ann Arbor Mich	G	SC	Pt Dem Lec O AV	30	5/ 5/58	5/ 9/58	C 5 days	50
Internal Medicine for Internists	Robert B Howard M D Continuation Medical Education 1342 Mayo Memorial University of Minnesota Minneapolis 14	S	BC	Lec O	15	3/17/58	3/19/58	C 3 days	30
The Newer Drugs in General Practice	Robert B Howard M D Continuation Medical Education 1342 Mayo Memorial University of Minnesota Minneapolis 14	G	BC	Lec O	15	1/ 6/58	1/ 8/58	C 3 days	30
Postgraduate Seminar (General Subjects)	The University of Mississippi Medical Center 2500 N State St Jackson Miss	I G	BC	Lab WR Sem Lec Pan O AV	12	10/24/57	10/25/57	C 2 days	10
Diabetes and Basic Metabolic Problems	American Diabetes Assoc Inc 1 E 45th St New York course at Academy of Medicine Fulton County Medical Society Atlanta Ga	C	BC	Sem Lec Pan O AV	20	1/22/58	1/24/58	C 3 days	40 Assoc members 75 Non members
Recent Advances in Internal Medicine and Clinical Physiological Seminars	St Michael's Hospital 306 High St Newark N J	C	SCI	Lab Pt Dem LC Sem O	20	9/18/57	4/ 2/58	I 10 sessions 2 hr weekly Wednesdays	25
Recent Advances in Internal Medicine and Therapeutics	Middlesex General Hospital 180 Somerset St New Brunswick N J	G	SCI	Lec	72	10/16/57	6/25/58	I 36 sessions 2 hr weekly Wednesdays	100 (interns and residents of outside hospitals 25)
Fevers and Infections Their Diagnosis and Treatment	Albany Medical College 47 New Scotland Ave Albany 8 N Y	G	BCI	Pt Dem IC Sem O TV	18	4/ 3/58	4/24/58	I 4 sessions 4½ hr weekly Thursdays	12 a day or 40 for course
Arthritis	University of Buffalo School of Medicine 3435 Main St Buffalo	G	BC	Pt Dem LC Sem Lec Pan O AV	14	2/19/58	2/20/58	C 2 days	30
Physical Diagnosis and Recent Advances in Internal Medicine	Meadowbrook Hospital Carman Ave and Bethpage Turnpike Hempstead N Y	C	SCI	Pt Dem IC WR	20	9/19/57	11/21/57	I 10 sessions 2 hr weekly Thursdays	20
Medicine PM74	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Montefiore Hospital New York 67	C	SCI	Pt Dem IC WR Sem Lec FPP	72	9/24/57 2/ 4/58	1/28/58	I 18 sessions 4 hr weekly Tuesdays	150
PM81 Medicine Arthritis	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Hospital for Joint Diseases New York 35	C	BC	IC Lec	19½	10/25/57 3/ 5/58	10/27/57	C 3 days	100
Medicine PM 49 Office Management of Diseases of Metabolism	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Mount Sinai Hospital New York 29	C	BC	Lec	14	11/ 1/57	11/ 2/57	C 2 days	50

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INTERNAL MEDICINE—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Rheumatic and Congenital Heart Disease	Joint Committee on Post Graduate Education 1313 Bedford Ave Brooklyn N Y course at Jewish Hospital and Jewish Chronic Disease Hospital Brooklyn N Y	G	SCI	Lec	12	9/57 4/58	12/57	I 12 sessions 1 hr weekly Fridays	20
Recent Advances in Internal Medicine	Joint Committee on Post Graduate Education 1313 Bedford Ave Brooklyn N Y course at Kings County Hospital Brooklyn N Y	G	SCI	Lec	15	10/57	12/57	I 10 sessions 1½ hr weekly Wednesdays	30
Management of Diabetes Mellitus and its Complications	Joint Committee on Post Graduate Education 1313 Bedford Ave Brooklyn N Y course at Jewish Chronic Disease Hospital Brooklyn N Y	G	SCI	Lec	8	10/57 4/58	12/57	I 8 sessions 1 hr weekly Thursdays	20
Internal Medicine	New York Medical College Flower and Fifth Ave Hospitals Fifth Ave and 106th St New York	S	SC	Lab Pt Dem	40 a week	Arranged		C 20 days	150 for 1 mo 300 for 2 mo
Parasitology	New York Medical College Flower and Fifth Ave Hospitals Fifth Ave and 106th St New York	C	SC	Lab Sem Lec	120	Arranged		C 30 days	75
Physical Diagnosis—Lungs, Heart Abdomen	New York Medical College Flower and Fifth Ave Hospitals Fifth Ave and 106th St New York	B	SCI	Pt Dem	20	Arranged		I 8 sessions Tuesdays	100
Arthritis	New York Polyclinic Hospital 345 W 50th St New York	C	SCI	Lab Pt Dem LC, WR Sem Pan Lec O AV	8	Arranged		I 8 sessions arranged	50
General Medicine	New York Polyclinic Hospital 345 W 50th St New York	G	SC	Lab Pt Dem LC WR Lec AV	192	4/ 1/58	4/30/58	C 28 days	100
5435 A Clinical Internal Medicine	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	LC WR		9/ 5/57 1/ 2/58 3/ 6/58	3-9 mo	I 4 hrs weekly, Thursdays	60 for 3 mo
5437 A Normal and Pathological Physiology Fuctional and Chemical Aspects	New York University Post Graduate Medical School 550 First Ave New York	G	SC	Lec Pt Dem, O AV	70	9/16/57	9/27/57	C 10 days	125
5413 A Auscultation of the Heart	New York University Post Graduate Medical School 550 First Ave New York	G	BC	Pt Dem Lec	21	10/14/57 2/24/58	10/16/57	C 3 days	55
5414 A Cardiac Roentgenology	New York University Post Graduate Medical School 550 First Ave New York	G	BC	Pt Dem Lec AV	14	10/17/57 2/27/58	10/18/57	C 2 days	35
433 A Problems in Clinical Medicine	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Pt Dem LC WR	75	11/ 1/57	4/25/58	I 25 sessions 3 hr weekly, Fridays	75
5424 A Diabetes Mellitus Hyperinsulinism and Hypoglucemia	New York University Post Graduate Medical School 550 First Ave New York	G	BC	Lec Pt Dem O AV	21	11/11/57	11/13/57	C 3 days	40
5443-A Arthritis and Allied Rheumatic Disorders	New York University Post Graduate Medical School 550 First Ave New York	G	SC	Pt Dem Lec	35	11/11/57	11/15/57	C 5 days	85
5439-A Recent Advances in the Diagnosis and Treatment of Poisonings	New York University Post Graduate Medical School 550 First Ave New York	G	BC	Lab Lec	21	12/ 2/57	12/ 4/57	C 3 days	60
5444 A Arthritis and Related Disorders	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Pt Dem Lec	35	2/11/58	3/11/58	I 5 sessions 7 hr weekly Tuesdays	85
5429-A Treatment of Renal Failure and Hypertension	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Lec Dem AV Pt Dem	24	4/ 7/58	5/26/58	I 8 sessions 3 hr weekly Mondays	35
5441 A Seminar in Internal Medicine	New York University Post Graduate Medical School 550 First Ave New York	G	SC	Pt Dem Sem Lec	280	4/ 7/58	5/29/58	C 40 days	250
5442 A Arthritis and Allied Rheumatic Disorders	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Pt Dem Lec	24	4/ 8/58	5/27/58	I 8 sessions 3 hr weekly Tuesdays	55
428-A Diseases of the Liver and Biliary Tract	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Pt Dem Lec	16	4/ 9/58	5/28/58	I 8 sessions 2 hr weekly Wednesdays	40
438-A Normal and Pathological Physiology Functional and Chemical Aspects	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Lec Pt Dem O Dem	16	4/ 9/58	5/28/58	I 8 sessions 2 hr weekly Wednesdays	50
421 A Problems in [illegible]	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Pt Dem I O Lec	12¼	4/11/58	5/23/58	I 7 sessions 1¾ hr weekly	35

137-A Symposium on Modern Therapeutics in Internal Medicine	New York University Post Graduate Medical School 550 First Ave New York	G	SC	Lec AV Pt Dem O	70	6/9/58	6/20/58	C 10 days	100
130-A The Management of Chronic Kidney Disease	New York University Post Graduate Medical School 550 First Ave New York	C	BC	Lec Pt Dem AV O	14	6/23/58	6/24/58	C 2 days	35
131-A The Management of Hypertension	New York University Post Graduate Medical School 550 First Ave New York	C	BC	Lec Pt Dem O AV	14	6/25/58	6/26/58	C 2 days	35
130-A Tutorial Course in Internal Medicine	New York University Post Graduate Medical School 550 First Ave New York	G	SC	Lab Pt Dem LC WR Lec		Arranged min 4 months		O Arranged	125 per mo
Internal Medicine	State University of New York Upstate Medical Center 766 Irving Ave Syracuse N Y	G	SCI	Sem Lec O AV	21	10/3/57	11/7/57	I 7 sessions 3 hr weekly Thursdays	15
Postgraduate Course in Mycology	Duke University School of Medicine Durham N C	G	SC	Lab Pt Dem LC WR Lec Pan	84	7/1/58	7/31/58	C 24 days	100
Duke Medical Postgraduate Course	Duke University School of Medicine Durham N C	C	BC	Lab Pt Dem LC WR Lec Pan	28	6/16/58	6/19/58	C 4 days	25
Annual Sessions in Rheumatic Diseases	Ohio State University Columbus 10 Ohio	G	BC	Lab Pt Dem LC WR Lec Pan O	14	10/24/57	10/25/57	C 2 days	Nil
Applied Therapeutics	University of Oregon Medical School 3181 S W Sam Jackson Park Rd Portland Ore	G	BC	Pt Dem LC WR Sem Lec Pan O AV	28	10/28/57	10/31/57	C 4 days	40
Therapy of the Cardiac Patient	University of Pennsylvania Graduate School of Medicine 237 Medical Lab Bldg Philadelphia	B	SCI	Sem Lec Pan AV	30	Fall/57		I 10 sessions 3 hr weekly	75
Rheumatic Diseases and Allied Conditions	University of Pennsylvania Graduate School of Medicine 237 Medical Lab Bldg Philadelphia	G	SCI	Lec Pan AV	24	9/26/57	12/19/57	I 12 sessions 2 hr weekly Thursdays	40
Metabolic Diseases	University of Pennsylvania Graduate School of Medicine 237 Medical Lab Bldg Philadelphia	C	SCI	Lec	10	10/7/57	12/9/57	I 10 sessions 1 hr weekly Mondays	20
Renal Disease	University of Pennsylvania Graduate School of Medicine 237 Medical Lab Bldg Philadelphia	C	SCI	Lec AV	10	2/3/58	4/7/58	I 10 sessions 1 hr weekly Mondays	20
Diabetes and Hypoglycemia	University of Pennsylvania Graduate School of Medicine 237 Medical Lab Bldg Philadelphia	C	BC	Lab Pt Dem Sem Lec Pan O AV	Unknown	3/24/58	3/26/58	C 3 days	75
Pathologic Physiology for Clinicians	American College of Physicians 4200 Pine St Philadelphia course at University of Pittsburgh School of Medicine Pittsburgh	S	SC	Lec Pan O AV	40 45	10/7/57	10/12/57	C 5½	30 A C P members 60 non members
Fluid and Electrolyte Balance	University of Tennessee College of Medicine 62 S Dunlap Memphis Tenn	C	BC	Pt Dem WR Lec Pan O AV	24	3/19/58	3/21/58	C 3 days	50
Recent Advances in Internal Medicine	University of Tennessee College of Medicine 62 S Dunlap Memphis Tenn	C	SC	Pt Dem WR Lec Pan O AV	40	5/26/58	5/30/58	C 5 days	75
Seminar on heart sounds and murmurs in Internal Medicine	University of Vermont College of Medicine Burlington Vt	G	BC	Pt Dem Sem Lec Pan O	10	10/17/57	10/18/57	C 2 days	10 for non residents of Vermont
Clinical Cardiopulmonary Physiology in Internal Medicine	University of Vermont College of Medicine Mary Fletcher Hospital Burlington Vt	S	SC	Lab Pt Dem LC Sem Pan O FPP	44	12/2/57	12/7/57	C 5½ days	30
Basic Concepts in Internal Medicine	American College of Physicians 4200 Pine St Philadelphia 4 course at Richmond Academy of Medicine Richmond	S	SC	Lec Pan O AV	35-40	10/14/57	10/18/57	C 5 days	30 A C P members 60 non members
Fluid and Electrolyte Balance	University of Washington School of Medicine Seattle 5	C	BC	Lab Pt Dem Lec Pan AV EPP	21	9/15/57	9/18/57	C 4 days	45
Contemporary Developments in Internal Medicine	University of Washington School of Medicine Seattle 5	G	SC	Pt Dem Sem O	40	11/11/57	11/15/57	O 5 days	50
Biologic & Physiologic Bases of Internal Medicine	American College of Physicians 4200 Pine St Philadelphia course at University of Wisconsin Medical School Madison Wis	G	SC	Pt Dem LC Lec O	2	10/21/57	10/25/57	C days	25
Biological Approaches to Internal Medicine	American College of Physicians 4200 Pine St Philadelphia 4 course at University of Wisconsin Medical School Madison Wis	S	SO	Lec Pan O AV	35-40	10/21/57	10/25/57	C days	30 A C P members 60 non members

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MALIGNANT DISEASE

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Recent Advances in the Diagnosis and Treatment of Cancer	City of Hope Medical Center 1500 East Duarte Rd Duarte Cal	G	BC	Pt Dem LC Lec Pan O AV	19½	5/13/58	5/15/58	C 3 days	10 per day or 25 for entire course
Postgraduate Crossroad Seminar	Florida State Board of Health—Bureau of Special Health Services P O Box 210 Jacksonville Fla course given in 8 Florida cities	G	BC	Sem Lec Pan O AV	4	between 10/1/57 and 10/11/57		C 1 day each in 8 Florida cities	Nil
Cancer Symposium (11th Annual)	Indiana University School of Medicine 1100 W Michigan St Indianapolis	G	BC	Lec Pan O AV	8	3/20/58	3/20/58	C 1 day	Nil
Tumor Conference	State University of Iowa College of Medicine University Hospital Iowa City	C	BC	Pt Dem WR Lec Pan O AV TV	14 16	12/11/57	12/12/57	C 2 days	25
Cancer	University of Buffalo School of Medicine 3435 Main St Buffalo	G	BC	Pt Dem LC WR Sem Lec Pan O AV	14	1/22/58	1/23/58	C 2 days	30
Diagnosis and treatment of head and neck cancer	Queens General Hospital 82-68 164th St Jamaica 32 N Y	S	SCI	Lab Pt Dem LC WR Sur Sem Lec Pan O	96	9/57	12/57	I twice weekly	300
Lectures on Cancer Research	Queens General Hospital 82-68 164th St Jamaica 32 N Y	G	SCI	Lec	12	9/57	10/57	I 8 days	25
Medicine PM72	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Montefiore Hospital New York 67	C	SCI	Pt Dem WR Lec AV EPP	76	9/10/57 1/28/58	1/21/58	I 19 sessions 4 hr weekly Tuesdays	150
Course in Early Cancer—Diagnosis and Management	Memorial Center for Cancer and Allied Diseases 444 E 68th St, New York 21	G	BC	Pt Dem LC Lec Pan O AV EPP	24	10/23/57	10/25/57	C 3 days	40
Tumors of Childhood	Memorial Center 444 E 68th St New York	B	SCI	Pt Dem IO WR Lec AV	16	9/57 11/57 1/58 4/58	11/57	I 8 sessions 2 hr weekly Fridays	Nil
Tumors benign and malignant lymphomas leukemias and related diseases in the juvenile age group	Memorial Center 444 E 68th St New York	B	BC	Pt Dem LC WR Lec AV	24	4/58		C 3 days	35
Chemotherapy of Cancer	Dr C P Rhoads Sloan Kettering Institute 420 E 68th St New York 21 course at Memorial Center for Cancer and Allied Diseases New York 21	S	SC	Lab Pt Dem LC WR Sem Lec Pan O AV	140	9/30/57	10/25/57	C 4 wk.	Nil
Malignant Diseases	State University of New York Upstate Medical Center 766 Irving Ave Syracuse N Y	B	SCI	Pt Dem LC Lec Pan O AV	18	Spring/58	Unknown	I 6 sessions 3 hr weekly Thursdays	15
Diagnosis and Treatment of Malignant Neoplasms	University of Oregon Medical School 3181 S W Sam Jackson Park Rd Portland 1 Ore	B	SC	Pt Dem LC Sem Lec Pan O AV	32	9/23/57	9/27/57	C 5 days	25
Diagnosis and Treatment of Malignant Diseases	Dr Robert C Parkin Assistant to the Dean University of Wisconsin Medical School 418 N Randall Ave, Madison Wis	G	BC	Pt Dem LC Lec O	18	1/21/58	1/23/58	C 3 days	25

NEUROLOGY

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Clinical Neurology	Cook County Graduate School of Medicine 707 South Wood St Chicago	G	SCI	Lab Pt Dem LC WR Lec O	30	9/18/57 3/19/58	11/21/57	I 10 sessions 3 hr weekly Wednesdays	100
The Neuromuscular Diseases of Children with Special Emphasis on Cerebral Palsy	Cook County Graduate School of Medicine 707 South Wood St Chicago	S	SC	Lab Pt Dem LC WR Sem Lec Pan O AV EPP	80	7/ 7/58	7/18/58	C 11 days	200
Demonstration of Technique and Interpretation of a Neurological Examination and Ancillary Diagnostic Procedures and the Convulsive Disorders	Indiana University School of Medicine 1100 W Michigan St Indianapolis	G	BC	Lab Pt Dem Lec Pan O AV	8	11/13/57	11/13/57	C 1 day	10
Neurology and Neurosurgery	University of Kansas Medical Center 39th and Rainbow Blvd Kansas City Ks	G	BC	Pt Dem WR Lec Pan O AV	14	2/26/58	2/27/58	C 2 days	30
Neurology	Tufts University School of Medicine Postgraduate Division 171 Harrison Ave Boston	G	BC	Pt Dem Lec Pan AV	6	4/30/58	5/ 3/58	C, 4 days	20
Neurological Medicine	Harvard Medical School Courses for Graduates 25 Shattuck St Boston course at Boston City Hospital Boston	S	SC	Pt Dem IO Lec O	38	6/ 2/58	6/ 7/58	C 6 days	100
Clinical Neurology	University of Michigan Medical School Department of Postgraduate Medicine University Hospital Ann Arbor Mich	G	BC	Pt Dem Lec AV	12	5/ 7/58	5/ 8/58	C 2 days	25

Neurology for General Physicians and Specialists	Robert B Howard M D Continuation Medical Education 1342 Mayo Memorial University of Minnesota Minneapolis 14	G	SC	Lec O	33	2/10/58	2/15/58	C 6 days	50
Recent Advances in Neurology	St Michael s Hospital 306 High St Newark N J	G	SCI	Pt Dem Lec O	12	10/30/57	1/22/58	I 6 sessions 2 hr weekly Wednesdays	25
Neurology in Adult and Pediatric Practice	University of Buffalo School of Medicine 3435 Main St Buffalo	G	BC	Pt Dem LC WR Sem Lec Pan O AV	14	10/23/57	10/24/57	C 2 days	Unknown
Lecture Course in Neurology	Meadowbrook Hospital Carman Ave and Bethpage Turnpike Hempstead N Y	G	SCI	Sem Lec	6	10/ 2/57	11/ 6/57	I 6 sessions 1 hr weekly Wednesdays	15
Neurology PM60 Review	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Montefiore Hospital New York 67	S	SCI	Pt Dem Sem Lec	48	11/ 4/57	11/30/57	I 16 sessions 3 hr 4 times weekly Mondays Wednesdays Fridays Saturdays	150
PM30 Clinical Neurology	Columbia University College Physicians and Surgeons 630 W 169th St New York 32 course at Mount Sinai Hospital New York 29	G	SC	IC Sem Lec	30	3/31/58	4/ 4/58	O 6 days	75
Neurology PM60 Advanced	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Montefiore Hospital New York 67	G	SC	Lab Pt Dem IC WR	35 a wk	Every 3 mo period		C 3 mo	150
Neurology PM61 Advanced	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Montefiore Hospital New York 29	S	SC	Pt Dem Sem Lec	3 mo full time	Arranged		3 mo arranged	150
Review of Neurology	Dr Geoffrey F Osler Goldwater Memorial Hospital Welfare Island New York	S	SCI	Lab Pt Dem LC Lec AV	100	9/18/57	12/13/57	I 40 sessions 2 and 3 hr weekly	175
Neurology Psychiatry Lectures	University of Pennsylvania Graduate School of Medicine 237 Medical Lab Bldg Philadelphia	G	SCI	Lec	30	9/24/57	1/29/58	I 30 sessions 1 hr weekly Tuesdays	50

NEUROLOGY AND PSYCHIATRY

Postgraduate Seminar in Neurology and Psychiatry	Metropolitan State Hospital 475 Trapelo Rd Waltham Mass	S	SCI	Lab Lec O AV	30	10/11/57	11/15/57	I 12 sessions 2½ hr twice weekly Fridays Saturdays	Nil
Psychiatry and Neurology	University of Nebraska College of Medicine 42nd and Dewey Omaha course at Nebraska Psychiatric Institute	G	BC	Pt Dem Sem Lec Pan O AV TV	6	9/12/57	9/12/57	O 1 day	10
Psychiatry PM 1	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Columbia Presbyterian Medical Center New York 32 and at New York State Psychiatric Institute New York	S	SO	Lab Pt Dem LC Sem Lec	400	10/ 7/57	12/13/57	O 50 days	300
G17 A Psychiatry and Neurology	New York University Post Graduate Medical School 550 First Ave New York	G	SO	Pt Dem LC Lec	420	9/16/57	12/ 6/57	O 12 weeks	300
G14 A Neuroanatomy and Neurophysiology	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Lab Lec	126	9/16/57	12/ 6/57	I 30 sessions 3½ hr weekly Wednesdays	250

OBSTETRICS

Postgraduate Obstetric Pediatric Seminar (formerly Tri State Obstetric Seminar)	Florida State Board of Health—Bureau of Maternal and Child Health P O Box 210 Jacksonville Fla course at Daytona Plaza Hotel Daytona Beach Fla	G	BC	Sem Lec Pan O AV	15	9/ 9/57	9/11/57	C 3 days	Nil
General and Surgical Obstetrics	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SCI	Lab Pt Dem LC WR Sur Lec O AV	50	9/18/57 3/19/58	11/20/57	I 10 sessions 6 hr weekly Wednesdays	150
Course I in Obstetrics	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SC	Lab Pt Dem LC WR Sur Lec O AV	75	9/30/57 11/ 4/57 2/24/58 3/24/58 5/ 5/58	10/12/57	O 12 days	150

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OBSTETRICS—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Clinical Obstetrics	Harvard Medical School Courses for Graduates 25 Shattuck St Boston course at Boston Lying in Hospital Boston	G	SC	Pt Dem LC WR Lec O	120-130	10/ 1/57 11/ 1/57 4/ 1/58 5/ 1/58	10/31/57	C 27 days	150
Obstetrics for General Physicians	Robert B Howard, M D Continuation Medical Education 1342 Mayo Memorial University of Minnesota Minneapolis 14	G	BC	Lec O	15	10/ 7/57	10/ 9/57	C 3 days	30
Obstetrics	University of Nebraska College of Medicine 42nd and Dewey Omaha course at Lincoln General Hospital Lincoln Neb	G	BC	Sem Lec Pan O AV	6	4/24/58	4/24/58	C 1 day	10
Obstetrics	University of Buffalo School of Medicine 3435 Main St Buffalo	G	BC	Pt Dem LC WR Sur Sem Lec Pan O AV EPP	14	3/ 5/58	3/ 6/58	C 2 days	30
PM80—Obstetrics—Traineeship	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Margaret Hague Maternity Hospital Jersey City N J	G	MT including housing and maintenance	LC WR Lec		First of each mo		three mo	350
PM81—Obstetrics—Observation Course	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Margaret Hague Maternity Hospital Jersey City N J	G	SC	LC Lec		First of each mo		C 1 mo full time	100
Manikin Obstetrics	New York Polyclinic Hospital 345 W 50th St New York	G	SCI	Pt Dem Cad Sem Lec AV	24	4/ 1/58	5/13/58	I, 12 sessions 2 hr weekly Saturdays	150
564 A Infertility	New York University Post Graduate Medical School 550 First Ave New York	G	BC	Lab Pt Dem Lec	21	12/ 2/57	12/ 4/57	C 3 days	45
Obstetrics	State University of New York Upstate Medical Center 766 Irving Ave Syracuse N Y	G	SC	Pt Dem LC WR Sem Lec AV	40	Arranged		C 5 days	25

OBSTETRICS & GYNECOLOGY

(See also Pathology)

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Obstetrics and Gynecology	University of California Medical Center Second and Parnassus Aves San Francisco	G	BC	Lec Pan	24	9/11/57	9/14/57	C 4 days	Unknown
Gynecology and Obstetrical Pathology	Indiana University School of Medicine 1100 W Michigan Indianapolis	S	SCI	Lab Lec O AV EPP	50	9/ 4/57	8/27/58	I 50 sessions 1 hr weekly Wednesdays	Varies
Advances in Obstetrics and Gynecology	Indiana University School of Medicine 1100 W Michigan Indianapolis	G	BC	Sem Lec Pan O AV	12	3/12/58	3/13/58	C 2 days	20
Obstetrics and Gynecology	State University of Iowa College of Medicine University Hospital Iowa City	G	BC	Pt Dem Lec, Pan O AV	10-12	11/ 8/57	11/ 9/57	C 1½ days	20 (no charge for members of the Iowa Ob and Gyn Society)
Gynecology and Obstetrics	University of Maryland School of Medicine 522 W Lombard St Baltimore 1	G	SC	LC WR Lec	12 wk	Arranged		C 12 wk	150
Pathology of Obstetrics and Gynecology	Harvard Medical School Courses for Graduates 25 Shattuck St Boston course at Free Hospital for Women Boston	S	SCI	Lab Lec	144	1/ 2/58	5/ 8/58	I Unknown	150
Obstetrics and Gynecology	University of Michigan Medical School Department of Postgraduate Medicine University Hospital Ann Arbor Mich	G	BC	Pt Dem Lec O AV	18	1/29/58	1/31/58	C 3 days	30
Obstetrics and Gynecology	University of Nebraska College of Medicine 42nd and Dewey Omaha	G	BC	WR Sem Lec Pan O AV	12	1/16/58	1/17/58	C 2 days	10 per day
Gynecological and Obstetrical Pathology	Joint Committee on Post-Graduate Education 1313 Bedford Ave Brooklyn N Y course at Kings County Hospital Brooklyn N Y	S	SCI	Lab Lec	30	3/58	5/58	I 10 sessions 3 hr weekly Fridays	100
Gynecology and Obstetrics including manikin obstetrics and operative gynecology (on cadaver)	New York Polyclinic Hospital 345 W 50th St New York	G	SC	Lab Pt Dem LC WR Sur Sem Lec AV Cad	400	4/ 1/58	5/31/58	C 56 days	250

Culdoscopy	New York Polyclinic Hospital 345 W 50th St New York	G	BOI	Lab Pt Dem LO Sem Lec AV	6	Arranged		I 3 sessions 2 hr thrice weekly Mondays Wednesdays Fridays	100
010-A X Ray Diagnosis in Obstetrics and Gynecology	New York University Post Graduate Medical School 550 First Ave New York	G	SC	Pt Dem Lec	35	10/21/57	10/25/57	C 5 days	85
Obstetrics and Gynecology	Southern Pediatric Seminar Saluda N C	G	SO	Sem Lec Pan	40	7/21/58	7/26/58	O 6 days	35
Post-Graduate Refresher Course for General Practitioners	Hahnemann Medical College and Hospital 230 N Broad St Philadelphia	G	SCI	Lec Pan AV O	24	9/25/57	12/11/57	I 12 sessions 2 hr weekly Wednesdays	50
Physiology of Reproduction	University of Pennsylvania Graduate School of Medicine 237 Medical Lab Bldg Philadelphia	G	SCI	Lec AV	30	10/ 2/57	5/14/58	I 30 sessions 1 hr weekly Wednesdays	30
Obstetrics—Gynecology	University of Tennessee College of Medicine 62 S Dunlap Memphis Tenn	G	BC	Pt Dem WR Lec Pan O AV	24	10/23/57	10/25/57	C 3 days	50

OCCUPATIONAL MEDICINE
(See also General Practice)

Aviation Medicine	University of California Medical Center Los Angeles 24	G	BC	Lec Pan O AV	18	10/31/57	11/ 2/57	C 3 days	Unknown
Occupational Medicine 202	Columbia University School Public Health and Administrative Medicine 600 W 168th St New York 32	G	SCI	Lec	16	2/ 3/58	3/29/58	I 8 sessions 2 hr weekly day to be arranged	30
Occupational Medicine 207 Public Health Aspects of Radiation	Columbia University School Public Health and Administrative Medicine 600 W 168th St New York 32	G	SCI	Lec	18	3/31/58	5/29/58	I 9 sessions 2 hr weekly to be arranged	30
Occupational Medicine 203 Industrial Medical Organization	Columbia University School Public Health and Administrative Medicine 600 W 168th St New York 32	G	SCI	Lec	Arranged	3/31/58	5/29/58	I 9 sessions to be arranged	30
188 A Occupational Medicine for Physicians	New York University Post Graduate Medical School 550 First Ave New York	G	SO	Sem Lec Pan	280	9/16/57	11/ 8/57	C 40 days	350
182 A Industrial Hygiene	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Lab Lec	Unknown	9/57		I 15 days	90
4810 A Industrial Toxicology	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Lec Dem AV	Unknown	9/57		I Unknown	90
1811 A Special Topics in Industrial Hygiene Laboratory Methods	New York University Post Graduate Medical School 550 First Ave New York	G	Unknown	Lab	Unknown	Arranged		Arranged	Arranged
184 A Medical Aspects of Compensation	New York University Post Graduate Medical School 550 First Ave New York	G	SO	Sem Lec Pan	35	10/21/57	10/25/57	C 5 days	45
180 A Air Pollution	New York University Post Graduate Medical School 550 First Ave New York	G	SO	Lec Dem AV EPP	70	12/ 2/57	12/13/57	C 10 days	90
180-A Introduction to Radiological Safety	New York University Post Graduate Medical School 550 First Ave New York	G	SC	AV Dem Lec	70	1/ 6/58 2/58	1/17/58	C 10 days	90
480-B Radiological Safety Laboratory	New York University Post Graduate Medical School 550 First Ave New York	G	SO	Lab	70	1/20/58 2/58	1/31/58	O 10 days	90
182 B Industrial Hygiene Laboratory	New York University Post Graduate Medical School 550 First Ave New York	G	SOI	Lab		2/58		I Unknown	90
489 A Chemical Methods in Industrial Hygiene	New York University Post Graduate Medical School 550 First Ave New York	G	SOI	Lab	Unknown	2/58		I Unknown	90
Bureau of School Health Pre Service Training Course	Dr Robert W Culbert Director Department of Health 125 Worth St New York 13 course at Kips Bay Health Center New York	G	SO	Pt Dem Lec EPP	90	Spring/58	Approximately 6 weeks later	O 30 days	Nil
School Health	State University of New York Upstate Medical Center 766 Irving Ave Syracuse N Y	G	BC	Pt Dem Lec O AV	5	10/ 3/57	10/ 3/57	C 1 day	10
Basic Radiological Health	Robert A Taft Sanitary Engineering Center 4676 Columbia Parkway Cincinnati	G	SC	Lab Lec Pan	70	9/ 9/57 1/13/58	9/20/57	C 10 days	Unknown
Occupational Radiation Protection	Robert A Taft Sanitary Engineering Center 4676 Columbia Parkway Cincinnati	G	SC	Lab Lec Pan	70	9/23/57 3/10/58	10/ 4/57	C Unknown	Unknown

Key will be found on page 1774

OCCUPATIONAL MEDICINE—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Radiation for Industrial Physicians and Lawyers	University of Cincinnati College of Medicine Institute of Industrial Health Eden and Bethseda Cincinnati	S	SC	Sem Lec O	38	9/ 9/57	9/13/57	C 5 days	100
Occupational Skin Problems	University of Cincinnati College of Medicine Institute of Industrial Health Eden and Bethseda Cincinnati	Unknown	SO	Pt Dem LC Lec Pan AV	35	10/28/57	11/ 1/57	C 5 days	Unknown
Fourth Annual Postgraduate Course in Aviation Medicine	College of Medicine Ohio State University Columbus Ohio	G	SC	LC Sem Lec O	30	9/ 9/57	9/13/57	C 5 days	75
Industrial Medicine	University of Tennessee College of Medicine 62 S Dunlap Memphis Tenn	G	BC	Pt Dem WR Lec Pan O AV	24	10/16/57	10/18/57	C 3 days	50

OPHTHALMOLOGY

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Glaucoma	University of California Medical Center Second and Parnassus Aves San Francisco	S	BC	Pt Dem WR Lec Pan	14	9/26/57	9/27/57	C 2 days	60
Annual Ophthalmological Conference	University of California Medical Center Second and Parnassus Aves San Francisco	S	BC	Pt Dem Sem Lec Pan EPP	21	12/ 4/57	12/ 6/57	C 3 days	60
Postgraduate Seminar in Ophthalmology and Summer Convention of The Colorado Ophthalmological Society	University of Colorado School of Medicine 4200 E Ninth Ave Denver 20	B	BC	Lec Pan	32	7/58	7/58	C 4 days	50
Ophthalmic Pathology	Department of the Army Office of the Surgeon General Education and Training Division Washington 25 D C course at Walter Reed Army Medical Center Washington D C	S	SC	Lab Sem Lec O AV TV EPP	45	3/17/58	3/21/58	C 5 days	Nil
Clinical Ophthalmology	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SC	Lab Pt Dem LC WR Sur Lec O	50	Arranged		C 2 wk	50
Extraocular Muscles I—Strabismus	Northwestern University Medical School 303 E Chicago Ave Chicago	S	SC	Pt Dem LC Sem Lec	24	9/16/57	9/27/57	C 10 days	100
Extraocular Muscles II—Strabismus	Northwestern University Medical School 303 E Chicago Ave Chicago	S	SCI	LC Lec	200	Arranged		I arranged 100 sessions twice weekly for 50 weeks	150
Ophthalmology Basic and Clinical	Indiana University School of Medicine 1100 W Michigan St Indianapolis	S	SCI	Lab, Pt Dem LC Sem Lec Pan, O AV	500	9/ 3/57	8/29/58	I 250 sessions 4 5 30 p m daily	Nil
Ophthalmology Clinical Conference	Indiana University School of Medicine 1100 W Michigan Indianapolis	S	SCI	Lab Pt Dem WR Lec, O AV	100	9/ 4/57	8/27/58	I 50 sessions 2 hr weekly Wednesdays	Nil
Ophthalmology	Indiana University School of Medicine 1100 W Michigan St Indianapolis	S	SCI	Sem Lec O AV	70	10/ 1/57	5/27/58	I 35 sessions 2 hr weekly Tuesdays	Nil
Ophthalmic Therapy	Indiana University School of Medicine 1100 W Michigan St Indianapolis	S	BC	Lec Pan O AV	16	5/28/58	5/29/58	C 2 days	50
Ophthalmology	University of Kansas Medical Center 39th and Rainbow Blvd Kansas City Ks	S	SC	Pt Dem Lec Pan O AV	17	4/ 7/58	4/ 9/58	C 2½ days	35
Infectious Diseases of the Eye	Tulane University School of Medicine 1430 Tulane Ave New Orleans	S	SC	Lab WR Sem Lec	40	1/13/58	1/17/58	C 5 days	50
Lancaster Courses in Ophthalmology	Ophthalmological Study Council Parker Heath M D Director Sullivan Harbor, Me course at Colby College Waterville Me	B	SC	Lab Sem Lec Pan O AV EPP	440	6/58	9/58	C 66 days	325
Seminar on Aniseikonia and Eikonometry	Bureau of Visual Science American Optical Company Southbridge Mass	S	BC	Sem Lec O AV EPP	20	10/ 7/57 Spring/58	10/ 9/57	C 3 days	Nil
Educational Conference in Visual Optics and Refraction	Bureau of Visual Science American Optical Company Southbridge Mass	G	BC	Sem Lec O AV	20	11/11/57 Spring/58	11/13/57	C 3 days	Nil
Ophthalmology for Specialists	Robert B Howard M D Continuation Medical Education 1342 Mayo Memorial University of Minnesota Minneapolis 14	S	BC	Lec O	15	1/ 9/58	1/11/58	C 3 days	50
Ophthalmology	University of Michigan Medical School Department of Postgraduate Medicine University Hospital Ann Arbor Mich	S	BC	Lec O AV	18	4/21/58	4/23/58	C 3 days	50
Home Study Course in Ophthalmology Basic Sciences	American Academy of Ophthalmology and Otolaryngology 15 Second St S W Rochester Minn	S	HS (O)	HS (AR)		9/ 1/57	6/30/58		20

Methods of Refraction Especially Correction of the Partially Seeing Patient	Newark Eye and Ear Infirmary 77 Central Ave Newark 2 N J	S	BOI	Pt Dem LC Lec O AV EPP	8	9/ 9/57	9/30/57	I 4 sessions 2 hr weekly Mondays	Nil
Slit Lamp Microscopy and Use of Gonioscope	Newark Eye and Ear Infirmary 77 Central Ave Newark N J	S	BOI	Pt Dem LC Lec O AV EPP	8	11/ 4/57	11/25/57	I 4 sessions 2 hr weekly Mondays	Nil
Extra Ocular Muscles Physiology Pathologic Variations Therapy	Newark Eye and Ear Infirmary 77 Central Ave Newark 2 N J	S	BCI	Pt Dem LC WR Lec O AV EPP	8	12/ 3/57	12/12/57	I 4 sessions 2 hr twice weekly Tuesdays Thursdays	Nil
Neuro Ophthalmology	Newark Eye and Ear Infirmary 77 Central Ave Newark 2 N J	S	BCI	Pt Dem LC WR Lec O	8	3/ 6/58	3/27/58	I 4 sessions 2 hr weekly Thursdays	Nil
Gonioscopy and Glaucoma	Brooklyn Eye and Ear Hospital 29 Greene Ave Brooklyn N Y	S	BC	Pt Dem Lec O EPP	18	11/18/57 5/19/58	11/20/57	C 3 days	[illegible]
Ophthalmology PM62 Glaucoma	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Montefiore Hospital New York 67	S	SCI	Sem Lec AV	16	10/21/57	12/ 9/57	I 8 sessions 2 hr weekly Mondays	30
Ophthalmology PM60 Elementary Ophthalmoscopy	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Montefiore Hospital New York 67	G	SOI	Lab Pt Dem LC Lec	27	1/ 8/58	3/ 5/58	I 9 sessions 3 hr weekly Wednesdays	30
Ophthalmology PM30 Histopathology of the Eye	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Mount Sinai Hospital New York 29	S	SOI	Lec AV	16	4/ 2/58	4/25/58	I 8 sessions 2 hr twice weekly Wednesdays Fridays	100
Combined Course in Ophthalmoscopy and External Eye Diseases	Joint Committee on Post Graduate Education 1313 Bedford Ave Brooklyn N Y course at Jewish Chronic Disease Hospital Brooklyn N Y	G	SOI	Pt Dem Lec	16	4/58	5/58	I 8 sessions 2 hr weekly Wednesdays	30
Refraction	New York Polyclinic Hospital 345 W 50th St New York	G	SO	Pt Dem LC Sem Lec O AV EPP	72	4/ 1/58	4/30/58	C 24 days	100
Ophthalmology	New York Polyclinic Hospital 345 W 50th St New York	G	SO	Lab Pt Dem LC WR S Lec Pan O AV Cad EPP	360	4/ 1/58	6/30/58	C 72 days	300
8 A Ocular Expressions of Systemic Disease	New York University Post Graduate Medical School 550 First Ave New York	S	SO	Lec	15	9/10/57	9/20/57	C 5 days	55
711 A Histopathology	New York University Post Graduate Medical School 550 First Ave New York	S	SO	Lab Lec	15	9/16/57	9/20/57	C 5 days	100
71 A Surgery of the Eye (for Specialists)	New York University Post Graduate Medical School 550 First Ave New York	S	SO	Pt Dem LC Cad	42	10/28/57 9/24/58	11/ 2/57	C 6 days	125
711 A Ophthalmoscopy	New York University Post Graduate Medical School 550 First Ave New York	S	SO	Pt Dem Lec	15	11/ 4/57	11/ 8/57	C 5 days	50
77 A Surgery of the Cornea	New York University Post Graduate Medical School 550 First Ave New York	S	SO	Lab Pt Dem Lec AV	35	12/ 2/57	12/ 6/57	C 5 days	200
79 A Neuro Ophthalmology	New York University Post Graduate Medical School 550 First Ave New York	S	SC	Lec Dem O Pt Dem	15	1/13/58	1/17/58	C 5 days	[illegible]
A Annual Review of Ophthalmological Advances	New York University Post Graduate Medical School 550 First Ave New York	S	BC	Pt Dem Lec	17	2/20/58	2/22/58	C 2½ days	100
71 A Motor Anomalies of the Eye (Part I) (for Specialists)	New York University Post Graduate Medical School 550 First Ave New York	S	SO	Pt Dem Lec	42	3/ 3/58	3/ 8/58	C 6 days	100
72 A Motor Anomalies of the Eye (Part II) (for Specialists)	New York University Post Graduate Medical School 550 First Ave New York	S	SO	Pt Dem Lec	35	3/10/58	3/14/58	C 5 days	85
73 A Ophthalmic Plastic Surgery (for Specialists)	New York University Post Graduate Medical School 550 First Ave New York	S	SO	Pt Dem Lec	15	3/31/58	4/ 4/58	C 5 days	85
Ophthalmology	State University of New York Upstate Medical Center 766 Irving Ave Syracuse N Y course at Hotel Syracuse Syracuse N Y	S	BO	Lec Pan O AV	14	12/ 6/57	12/ 7/57	C 2 days	25
Newer Developments in Ophthalmology	Frank E Bunts Educational Institute (Cleveland Clinic Foundation) 2020 E 93rd Street Cleveland	G	BO	Pt Dem LC Sem Lec Pan O AV	12	12/11/57	12/12/57	C 2 days	20

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OPHTHALMOLOGY—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Postgraduate Course in Ophthalmology	Ohio State University Columbus Ohio	S	BC	Lec AV	16	3/ 3/58	3/ 4/58	C 2 days	20
Postgraduate Convention of the Oregon Academy of Ophthalmology and Otolaryngology	Dr Robert W Zeller Secretary Treasurer Postgraduate Convention 603 Mayer Bldg Portland 5 Ore course at University of Oregon Medical School Portland 1 Ore	S	BC	Pt Dem Lec Pan O AV	12	3/24/58	3/25/58	C 2 days	60 (If otolaryngology sessions are also attended fee for combined courses is 90)

OPHTHALMOLOGY AND OTOLARYNGOLOGY

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Midwinter Seminar in Ophthalmology and Otolaryngology	Division of Postgraduate Education University of Florida College of Medicine Gainesville Fla course at hotel Miami Beach Fla	S	SC	Lec Pan AV	30	1/27/58	2/ 1/58	C 6 days	40
Otolaryngology & Ophthalmology —including refraction and cadaver study	New York Polyclinic Hospital 345 W 50th St New York	C	SC	Lab Pt Dem I C WR Sem Sur Lec O Cad AV EPP	480	4/ 1/58	6/30/58	C 72 days	600
Thirty First Annual Spring Congress in Ophthalmology & Otolaryngology	Gill Memorial Eye Ear and Throat Hospital 711 S Jefferson St Roanoke Va course at hotel	S	SC	I C Sem Lec O AV	40	4/14/58	4/19/58	C 5½ days	80

ORTHOPEDIC SURGERY

(See also Anatomy Pathology and Pediatrics)

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Orthopedics in General Practice	University of Southern California School of Medicine Postgraduate Division 2025 Zonal Ave Los Angeles	G	BC	Pt Dem LC Lec Pan O	23	2/15/58	2/17/58	C 3 days	75
Orthopedic Pathology	University of Colorado School of Medicine 4200 E Ninth Ave Denver 20	S	SCI	Lab Lec	Unknown	9/57	6/58	I 1 hr weekly Thursdays for 9 mo	10
Orthopedic Pathology	Indiana University School of Medicine 1100 W Michigan Indianapolis	S	SCI	Lab Lec O AV FPP	21	11/ 4/57	2/17/58	I 14 sessions 1½ hr weekly Mondays	[illegible]0
Orthopedics	Indiana University School of Medicine 1100 W Michigan Indianapolis	G	BC	Lec Pan O AV	8	3/19/58	3/20/58	C 2 days	10
Orthopedic Surgery 1	Harvard Medical School Courses for Graduates 25 Shattuck St Boston course at Children's Hospital Boston	S	SC	Lab Pt Dem I C WR Sur Lec	Varies	Arranged		Arranged	800 for 12 mo
Orthopedic Surgery 2	Harvard Medical School Courses for Graduates 25 Shattuck St Boston course at Massachusetts General Hospital Boston	S	SC	Lab Pt Dem LC WR Lec	Varies	Arranged		Arranged	800 for 12 mo
PM81—Orthopedic Surgery—Foot Disabilities	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Hospital for Joint Diseases New York 35	G	SCI	Pt Dem LO, Lec	20	10/ 3/57	12/ 5/57	I 10 sessions 2 hr weekly Thursdays	100
PM80 Orthopedic Surgery	Columbia University College Physician and Surgeons 630 W 168th St New York 32 course at Hospital for Joint Diseases New York 35	G	SCI	Pt Dem I O Lec	66	3/ 6/58	5/15/58	I 11 sessions 6 hr weekly Thursdays	100
Orthopedics in General Practice	New York Medical College Flower and Fifth Ave Hospitals Fifth Ave and 106th St New York	C	SC or SCI	LO, Sem Lec	40 and 24	Arranged		C 1 week I 6 sessions 4 hr weekly Wednesdays	60
Orthopedics of the Foot	New York Medical College Flower and Fifth Ave Hospitals Fifth Ave and 106th St New York	S	SCI	Pt Dem Lec Cad	16	Arranged		I 8 sessions	100
Operative Orthopedics (Dissection)	New York Polyclinic Hospital 345 W 50th St New York	G	SCI	S Lec Cad	10	Arranged		I 10 sessions 1 hr weekly Thursdays	100
884 A Orthopedics for the General Practitioner	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Sem	16	10/ 8/57	12/ 3/57	I 8 sessions 2 hr weekly Tuesdays	45
886 A Orthopedic Aspects of the Treatment of Rheumatic Disorders	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Pt Dem LO WR Lec	20	10/ 9/57	12/11/57	I 10 sessions 2 hr weekly Wednesdays	[illegible]0
883 A Anatomy for Orthopedic Surgeons	New York University Post Graduate Medical School 550 First Ave New York	S	SC	Cad	35	1/13/58	1/17/58	C [illegible] days	1[illegible]

8 A Orthopedics in General Practice	New York University Post Graduate Medical School 550 First Ave New York	G	BO	Pt Dem LC WR Sem Lec	21	2/19/58	2/21/58	O 3 days	55
58 A Orthopedic Aspects of the Treatment of Rheumatic Disorders	New York University Post-Graduate Medical School 550 First Ave New York	G	BCI	Pt Dem LC WR	21	3/18/58	4/1/58	I 3 sessions 7 hr weekly Tuesdays	50
OTOLARYNGOLOGY (See also Anatomy)									
Otolaryngology	University of California School of Medicine Los Angeles 24	G	BO	Lec Pan O AV	12	11/15/57	11/16/57	C 2 days	Unknown
Clinical Otolaryngology	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SO	Lab Pt Dem LC WR Sur Lec O	50	Arranged		O 2 weeks	50
Fellowship Fenestration Surgery	Northwestern University Medical School 303 E Chicago Ave Chicago	S	SO	Lab Pt Dem LC WR Sur Sem Lec Pan	960	Arranged		O 80 days	500
Endaural Otologic Surgery	Northwestern University Medical School 303 E Chicago Ave Chicago	S	SO	Lab Pt Dem Sur Sem Lec Pan	172	3/3/58	3/28/58	C 20 days	500
Audiology	Northwestern University Medical School 303 E Chicago Ave Chicago	S	SO	Lab Pt Dem Lec	52	3/31/58	4/5/58	C 6 days	100
Annual Otolaryngologic Assembly—Current Trends in Otolaryngology	University of Illinois College of Medicine 1853 W Polk St Chicago 12	S	SO	Lab Cad Sem Lec Pan O AV	69	9/30/57	10/6/57	C 7 days	125
Basic Science of Otolaryngology	University of Illinois College of Medicine 1853 W Polk St Chicago 12	S	SO	Lab Pt Dem LC WR Cad Sur Sem Lec Pan O AV	1584	10/1/57	6/30/58	C 100 days	750
Otolaryngology	Indiana University School of Medicine 1100 W Michigan St Indianapolis	S	SO	Lab Pt Dem LC Sur Lec Pan O AV EPP	100	3/24/58	4/5/58	O 13 days	250
Otolaryngology	University of Kansas Medical Center 39th and Rainbow Blvd Kansas City Ks	S	BO	Pt Dem Sem Lec Pan O AV	17	4/9/58	4/11/58	C 2½ days	35
Rhinoplastic Surgery	Tulane University School of Medicine 1460 Tulane Ave New Orleans	S	SO	Pt Dem WR Sem Lec Pan	48	2/3/58	2/8/58	O 6 days	100
Otolaryngology	University of Michigan Medical School Department of Postgraduate Medicine University Hospital Ann Arbor Mich	S	BO	Pt Dem Lec O AV	18	4/17/58	4/19/58	O 3 days	50
Home Study Course in Otolaryngology	American Academy of Ophthalmology and Otolaryngology 15 Second St S W Rochester Minn	S	HS (O)	HS (AR)		9/1/57	6/30/58		20
Medical Otolaryngology Headaches Allergy	Hansel Foundation 634 N Grand Ave St Louis	S	SO	Lab Lec Pan O AV FPP	40	5/27/58	5/31/58	O 5 days	150
Otorhinolaryngology PM30 Transmeatal (Endaural) Surgery	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Mount Sinai Hospital New York 29	S	SO	Lab Sur	60	9/9/57 4/7/58	9/20/57	O 10 days	300
Otorhinolaryngology PM31 Vocal Rehabilitation	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Mount Sinai Hospital New York 29	S	SCI	Lec Pan	12	10/31/57	12/12/57	I 6 sessions 2 hr weekly Thursdays	50
Otorhinolaryngology PM31 Mobilization of Stapes	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Mount Sinai Hospital New York 29	S	SO	Lab Pt Dem Lec	120	11/4/57 3/10/58	11/22/57	O 15 days	500
Otorhinolaryngology PM32 Indirect Laryngoscopy Voice Rehabilitation and Audiology	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Mount Sinai Hospital New York 29	S	SO	Pt Dem LC Sem	35	2/10/58	2/15/58	C 5 days	150
Otolaryngology PM2 Histopathology of ear nose throat	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Columbia Presbyterian Medical Center New York 32	S	SOI	Lab	32	4/8/58	5/29/58	I 10 sessions 2 hr weekly Thursdays	100
Otorhinolaryngology PM33 Rhinoplasty and Otoplasty	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Mount Sinai Hospital New York 29	S	SO	Lab LC Sur Lec	112	7/12/58	7/25/58	O 14 days	350
Bronchoscopy	New York Polyclinic Hospital 345 W 50th St New York	G	SOI	LC Cad Lec	8	Arranged	–	I 1 hr weekly on Wednesdays by arrangement	150
96 A Anatomy of the Head Neck and Thorax for Otolaryngologists	New York University Post Graduate Medical School 550 First Ave New York	S	SO	Cad Lec	90	9/16/57	10/25/57	C 30 days	125
97 A Audiology	New York University Post-Graduate Medical School 550 First Ave New York	G	BO	Pt Dem LC Lec	21	9/23/57 3/5/58	9/25/57	O 3 days	75
598 A Neuro Otolaryngology	New York University Post Graduate Medical School 550 First Ave New York	S	BO	LC Lec	21	9/26/57 3/6/58	9/28/57	O 3 days	50

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OTOLARYNGOLOGY—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
5904 A Endaural Surgery	New York University Post Graduate Medical School 550 First Ave New York	S	SC	Cad Sem Lec	70	11/ 4/57 1/27/58	11/16/57	C 10 days	250
5911 A Broncho Esophagology	New York University Post Graduate Medical School 550 First Ave New York	S	SCI	LC Sem	Variable By arrangement			I Arranged	250
5905-A Endoscopy Bronchoesophagology and Laryngology	New York University Post Graduate Medical School 550 First Ave New York	S	SC	Pt Dem Sem Lec	70	12/ 2/57	12/14/57	C 10 days	200
5910 A Laryngology and Surgery of the Larynx and Neck	New York University Post Graduate Medical School 550 First Ave New York	S	SC	Cad Lec	70	1/ 6/58	1/17/58	C 10 days	250
5912 A Seminar in Recent Advances in Otolaryngology	New York University Post Graduate Medical School 550 First Ave New York	S	SC	Pt Dem LC WR Sem	35	2/17/58	2/21/58	C 5 days	75
Seventh Annual Teaching Day in Otolaryngology	State University of New York Upstate Medical Center 766 Irving Ave Syracuse N Y	S	BC	Sem Lec Pan O AV	8	Spring/58		C 1 day	Unknown
E N T Problems and Allergic Respiratory Disease	University of Cincinnati Medical College Eden Avenue—Rear of General Hospital Cincinnati	G	BC	Sem Lec Pan AV	5	3/ 9/58	3/ 9/58	C 1 day	10
Twenty second Annual Graduate Convention in Otology, Rhinology and Laryngology	University of Cincinnati College of Medicine Eden and Bethesda Ave Cincinnati 19	S	SC	Lab Pt Dem Sur Sem Lec O AV EPP	45	4/14/58	4/19/58	C 5½ days	150
Otolaryngic Radiology	Ohio State University Hospital Dept of Otolaryngology Columbus 10 Ohio	S	BC	Lec O AV	18	2/ 4/58	2/ 6/58	C 3 days	50
Laryngology and Laryngeal Surgery	Temple University School of Medicine and Hospital 3400 N Broad St Philadelphia 40	B	SC	Lab Pt Dem LC Sur Sem Lec Pan O AV EPP	80	11/ 4/57	11/15/57	C 11 days	250
Postgraduate Convention of the Oregon Academy of Ophthalmology and Otolaryngology	Dr Robert W Zeller Secretary treasurer Postgraduate Convention 603 Mayer Bldg Portland 5 Ore *course at University of Oregon Medical School* Portland 1 Ore	S	BC	Pt Dem Lec Pan O AV	12	3/21/58	3/22/58	C 2 days	60 (If ophthalmology sessions are also attended fee for the combined courses is 90)
Bronchology Esophagology and Laryngeal Surgery	University of Pennsylvania Graduate School of Medicine Philadelphia	S	SC	Lab Sur Sem Lec O AV	Unknown	6/ 3/58	6/15/58	C 2 weeks	250

PATHOLOGY

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Surgical Pathology	College of Medical Evangelist 1720 Brooklyn Ave Los Angeles 33	G	SCI	Lec	99	10/ 1/57	6/ 3/58	I 33 sessions 3 hr weekly Tuesdays	Unknown
Application of Histochemistry to Pathology	Department of the Army Office of the Surgeon General Education and Training Division Washington 25 D C course at Walter Reed Army Medical Center Washington D C	S	SC	Lab Sem Lec O AV TV EPP	40	12/ 2/57 2/ 3/58	12/ 6/57	C 5 days	Nil
Pathology of the Oral Regions	Department of the Army Office of the Surgeon General Education and Training Division Washington 25 D C course at Armed Forces Institute of Pathology Washington 25 D C	B	SC	Sem Lec Pan AV	32½	3/24/58	3/28/58	C 5 days	Nil
Surgical Pathology Review	Baptist Memorial Hospital 800 Miami Road Jacksonville Fla	S	SCI	Lab Lec O AV	9	1/10/58	2/23/58	I 6 sessions 1½ hr weekly Wednesdays	Nil
Surgical Pathology	Cook County Graduate School of Medicine 707 S Wood St Chicago	C	SCI	Lab WR Lec O AV	20	9/18/57 3/19/58	11/21/57	I 10 sessions 2 hr weekly Wednesdays	100
Surgical Pathology	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SC	Lab Sem O AV EPP	96	Arranged		C 4 weeks	250
Surgical Pathology	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SC	Lab Sem Lec O AV EPP	48	Arranged		C 2 weeks	150
Surgical Pathology	Indiana University School of Medicine 1100 W Michigan Indianapolis	G	SCI	Lab Lec O AV EPP	50	9/ 4/57	8/27/58	I 50 sessions 1 hr weekly Wednesdays	Arranged
Gross Autopsy Conference	Indiana University School of Medicine 1100 W Michigan Indianapolis	G	SCI	Sem O	100	9/ 5/57	8/28/58	I 50 sessions 2 hr weekly Thursdays	Varies

Microscopic Pathology Conferences	Indiana University School of Medicine 1100 W Michigan Indianapolis	S	SCI	Lab Pan O AV	50	9/ 7/57	8/30/58	I 1 hr weekly Saturdays	Arranged
Neuropathology Conference	Indiana University School of Medicine 1100 W Michigan Indianapolis	S	SCI	Lab Lec O AV EPP	Varies	Arranged		I by arrangement	Arranged
Neuropathology	University of Maryland School of Medicine 522 W Lombard St Baltimore 1	S	SC	Lab Lec Pan	6 mo	Arranged		C 6 mo	210
PM30—Pathology—General and Special	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Mount Sinai Hospital New York 29	G	SCI	Lab	30	9/21/57	1/11/58	I 15 sessions 2 hr weekly Saturdays	100
PM31 Pathology—Surgical	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Mount Sinai Hospital New York 29	G	SCI	Lab	30	1/18/58	5/ 3/58	I 15 sessions 2 hr weekly Saturdays	100
Review of General Pathology and Advanced Instruction in Special Pathology	New York Medical College Flower and Fifth Ave Hospitals Fifth Avenue & 106th St New York	B	SC	Pt Dem Lec	120	Arranged		C 14 weeks	200
Surgical Pathology (a)	New York Polyclinic Hospital 345 W 50th St New York	G	SC	Lab Pt Dem LC WR S Sem Lec O AV EPP	360	4/ 1/58	6/30/58	C 72 days	[illegible]0
General Pathology	New York Polyclinic Hospital 345 W 50th St New York	G	SC	Lab EPP		4/ 1/58	3/31/59	C 12 months	1 000
111 A Pathology for Surgeons	New York University Post-Graduate Medical School 550 First Ave New York	G	SCI	Lab Lec	16	9/30/57 3/31/58	11/21/57	I 16 sessions 1 hr twice weekly Mondays and Thursdays	[illegible]
115-A Histopathology for Gynecologists	New York University Post-Graduate Medical School 550 First Ave New York	G	SCI	Lab Lec	16	10/ 1/57 4/ 1/58	11/22/57	I 16 sessions 1 hr weekly Fridays	[illegible]
Applied Gynecological Pathology	The Long Island Jewish Hospital 270-05 76th Ave New Hyde Park N Y	B	SCI	Lab Sem Lec AV	30	10/ 8/57	12/10/57	I 10 sessions 3 hr weekly Tuesdays	100

PEDIATRICS

(See also Surgery Occupational Medicine and Psychiatry)

Hereditary Diseases of Childhood	City of Hope Medical Center 1500 E Duarte Rd Duarte Cal	G	BC	Pt Dem LC Lec Pan O AV	13	10/12/57	10/13/57	O 2 days	10 per day or 1[illegible] for entire course
Preventive Psychiatry in Pediatric Practice	University of California at Los Angeles Medical Center Los Angeles 24	G	SCI	Sem Lec O	24	Spring/58		I 12 sessions 2 hr weekly	100
Refresher Course for Pediatricians	University of Southern California School of Medicine Postgraduate Division 2025 Zonal Ave Los Angeles	G	BC	Pt Dem LC Lec Pan O	15	Fall/57		O 2 days	[illegible]
561—Pediatric Clinics for the General Practitioner	University of Southern California School of Medicine Postgraduate Division 2025 Zonal Ave Los Angeles 33 course at Childrens Hospital Los Angeles 27	G	SCI	Pt Dem LC Lec	20	10/ 8/57	3/18/58	I 20 sessions 1 hr weekly Tuesdays	[illegible]
867—Short term Clinical Course in Pediatrics	University of Southern California School of Medicine Postgraduate Division 2025 Zonal Ave Los Angeles course at Childrens Hospital Los Angeles	G	MF		Unknown	Arranged		Arranged	1[illegible]0 2 wks + 50 for each additional 2 wks up to 6 wks
Pediatrics	University of Colorado School of Medicine 1200 E Ninth Ave Denver 20	B	SC	Lec Pan	40	4/28/58	5/ 2/58	C 5 days	50
General Pediatrics	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SCI	Lab Pt Dem LC WR Lec O	20	9/18/57 3/19/58	11/20/57	I 10 sessions 2 hr weekly Wednesdays	100
Diagnosis and Treatment of Congenital and Heart Disease in Infants and Children	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SC	Lab Pt Dem LC WR Sur Lec O AV	25	11/ 4/57	11/16/57	C 5 days	100
Course V—Pediatrics	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SC	Lab Pt Dem LC WR Lec O AV EPP	70	5/12/58	[illegible]/23/58	O 11 days	1[illegible]0
Clinical Pediatrics	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SC	Pt Dem LC WR Sur Sem Lec O AV	120	Arranged		O 4 weeks	100
Clinical Pediatrics	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SC	Pt Dem LC WR Sur Sem Lec O	60	Arranged		O 2 weeks	60
Emotional Problems of Childhood	North Shore Hospital 225 Sheridan Rd Winnetka Ill	G	SCI	Sem Lec O AV	18	10/ 2/57	6/ 4/58	I 9 sessions 2 hr monthly Wednesdays	Nil
Clinical Pediatrics	Indiana University School of Medicine 1100 W Michigan St Indianapolis	G	BC	Lec Pan O AV	8	12/18/57	12/18/57	C 1 day	10
Pediatrics	State University of Iowa College of Medicine University Hospital Iowa City	G	BC	Pt Dem WR Lec Pan O AV	10-12	9/11/57	9/12/57	C 1½ days	[illegible]

Key will be found on page 1774

PEDIATRICS—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Children's Mercy Hospital Annual Clinical Day	Children's Mercy Hospital 1710 Independence Ave Kansas City 6 Mo	G	BC	Pt Dem Lec Pan AV	6	Spring/58		C, 1 day	None
Pediatrics	University of Kansas Medical Center 39th and Rainbow Blvd Kansas City Ks	G	BC	Pt Dem LC Lec Pan O AV	21	3/10/58	3/12/58	C 3 days	35
Pediatric Post Graduate Series	*University of Louisville Medical School* 101 W Chestnut Louisville Ky	C	SCI	Pt Dem LC WR Sem Lec O	24	4/ 8/58	6/20/58	I 8 sessions 3 hr weekly Tuesdays	30
Pediatric Orthopedics	Tulane University School of Medicine 1430 Tulane Ave New Orleans	S	SC	Pt Dem WR Sem Pan Lec O AV	40	2/24/58	2/28/58	C 5 days	50
Pediatrics 3	Harvard Medical School Courses for Graduates 25 Shattuck St Boston course at Massachusetts General Hospital Boston	G	SC	Pt Dem LC Lec O AV	73	6/ 2/58	6/13/58	C 11 days	150
Pediatric Metabolism and Endocrinology	Harvard Medical School Courses for Graduates 25 Shattuck St Boston course at Massachusetts General Hospital Boston	G	BC	Pt Dem LC Lec O AV	28	6/10/58	6/13/58	C 4 days	70
Pediatrics	Tufts University School of Medicine Postgraduate Division 171 Harrison Ave Boston	G	BC	Pt Dem Lec Pan AV	14	3/20/58	3/22/58	C 3 days	20
Pediatrics	University of Michigan Medical School Department of Postgraduate Medicine University Hospital Ann Arbor Mich	G	BC	Pt Dem Lec O AV	18	1/27/58	1/29/58	C 3 days	30
Pediatrics for Pediatricians	Robert B Howard M D Continuation Medical Education 1342 Mayo Memorial University of Minnesota Minneapolis 14	S	BC	Lec Pan O	15	9/24/57	9/26/57	C 3 days	30
Pediatrics for General Physicians	Robert B Howard M D Continuation Medical Education 1342 Mayo Memorial University of Minnesota Minneapolis 14	G	BC	Lec O	15	3/ 3/58	3/ 5/58	C 3 days	30
Pediatrics	University of Nebraska College of Medicine 42nd and Dewey Omaha	G	BC	Pt Dem WR Sem Lec Pan O AV	12	4/ 7/58	4/ 8/58	C 2 days	10 per day
Newer Trends in Pediatrics	St Michael's Hospital 306 High St Newark N J	G	SCI	Pt Dem Sur Lec Pan O AV	12	3/ 5/58	4/ 9/58	I 6 sessions 2 hr weekly Wednesdays	25
Full Time Clinical Pediatrics Course	Albany Medical College 47 New Scotland Ave Albany N Y	C	O (MI except that credit is given)	Pt Dem LC WR Sem Lec O	Unknown	Arranged		9 mo continuous	600
Pediatric Teaching Day	Albany Medical College 47 New Scotland Ave Albany 8 N Y	G	BC	Pt Dem Sem Lec O	6	11/13/57	11/13/57	C 1 day	10
Recent Advances in Communicable Disease	Meadowbrook Hospital Carman Ave and Bethpage Turnpike Hempstead N Y	G	SCI	Pt Dem LC WR Lec Pan O	24	10/16/57	1/15/58	I 12 sessions 2 hr weekly Wednesdays	25
Bureau of Child Health Preservice Training Course	Dr Harold Jacobziner Assistant Commissioner N Y C Department of Health 125 Worth St New York	G	SC	Pt Dem Lec EPP	75	1/ 9/58 4/58	Unknown	C 25 days	Nil
Pediatric Allergy	New York Medical College Flower and Fifth Ave Hospitals Fifth Ave and 106th St New York	S	SCI	Lab Sem Lec	840	Arranged		I 7 hr every Wednesday for six mo	300
Clinical Pediatrics	New York Medical College Flower and Fifth Ave Hospitals Fifth Ave and 106th St New York	S	SC	Lab Pt Dem WR Sem Lec	Unknown	Arranged		C full time for 1 3 6 9 and 12 mos	150
Pediatrics	New York Polyclinic Hospital 345 W 50th St New York	G	SC	Lab Pt Dem LC WR Lec	144	4/ 1/58	4/30/58	C 24 days	100
616-A Pediatric Seminars	New York *University Post Graduate* Medical School 550 First Ave New York	G	SCI	*Sem*		9/25/57 1/ 8/58 3/26/58		I 12 36 sessions 3½ hr weekly on Wednesdays	90 250
616-A Dynamics of Growth and Development	New York University Post Graduate Medical School 550 First Ave New York	C	SCI	WR Sem Lec	30	9/26/57 1/16/58	12/ 5/57	I 10 sessions 3 hr weekly Thursdays	60
618-A Pediatric Allergy	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	LC Lec	36	10/ 1/57 3/ 4/58	12/17/57	I 12 sessions 3 hr weekly Tuesdays	75
A Dermatology and Syphilology	New York University Post Graduate Medical School 550 First Ave New York	S	SC	Pt Dem LC Lec	35	10/ 7/57	10/11/57	C 5 days	85
617-A Clinical Pediatric Cardiology	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	LC	30	10/16/57 [illegible]/10/58	12/18/57	I 10 sessions 3 hr weekly Wednesdays	50

612-A Pediatric Endocrinology and Related Metabolism	New York University Post Graduate Medical School 550 First Ave New York	G	BO	Pt Dem Lec AV	21	11/11/57	11/14/57	C 4 days	85
611-A Review of Clinical Pediatrics	New York University Post Graduate Medical School 550 First Ave New York	G	SO	Pt Dem WR Lec	42	11/18/57 2/17/58	11/23/57	C 6 days	55
613-A Pediatric Cardiology	New York University Post Graduate Medical School 550 First Ave New York	G	SO	Lec Pt Dem AV Dem	35	12/ 2/57	12/ 6/57	C 5 days	55
614-A Symposium on Tuberculosis and other Pulmonary Diseases in Childhood	New York University Post Graduate Medical School 550 First Ave New York	G	SC	Pt Dem LC WR Lec	35	4/14/58	4/18/58	C 5 days	65
Problems in Pediatric Practice	State University of New York Upstate Medical Center 766 Irving Ave Syracuse N Y	B	BC	Pt Dem Sem O AV	14	4/10/58	4/11/58	C 2 days	10
Southern Pediatric Seminar	Southern Pediatric Seminar Saluda N C	G	SC	Pt Dem Sem Lec Pan	80	7/ 7/58	7/19/58	C 13 days	70
Pediatric Advances for Pediatricians and General Practitioners	The Children's Hospital of Philadelphia 1740 Bainbridge St Philadelphia 46	G	SC	Pt Dem Lec Pan O	32	5/26/58	5/30/58	C 5 days	115
Pediatrics for the General Practitioner	Hahnemann Medical College and Hospital 230 N Broad St Philadelphia	G	SCI	Pt Dem IC WR Sem Lec AV	24	10/ 3/57	12/10/57	I 12 sessions 2 hr weekly Thursdays	50
Dermatoses in Infants and Children	The Skin and Cancer Hospital and St Christopher's Hospital of Temple University Medical Center 804 Pine St Philadelphia	S	SC	Pt Dem LO Sur Lec Pan O AV	36	10/14/57	10/19/57	C 6 days	125
Pediatric Gastroenterology and Infant Feeding	University of Pennsylvania Graduate School of Medicine 237 Medical Lab Bldg Philadelphia	G	SCI	Pt Dem LC Lec	24	9/25/57	12/11/57	I 12 sessions 2 hr weekly Wednesdays	50
Practical Pediatric Hematology	University of Pennsylvania Graduate School of Medicine Philadelphia	B	BO	Lab LC Sem Lec O	21	6/ 2/58	6/ 4/58	C 3 days	80
Blood Group Incompatibilities and Erythroblastosis Fetalis	University of Pennsylvania Graduate School of Medicine Philadelphia	Unknown	BC	Lab Sem Lec Pan O	14	6/ 5/58	6/ 6/58	C 2 days	50
Pediatrics	University of Tennessee College of Medicine 62 S Dunlap Memphis Tenn	G	SC	Pt Dem WR Lec Pan O AV	40	10/ 7/57	10/11/57	C 5 days	75
Postgraduate Refresher Course in Pediatrics	University of Texas Postgraduate School of Medicine 213 West Avenue G Temple Tex course at Scott and White Memorial Hospitals Scott Sherwood and Brindley Foundation Temple Tex	G	SC	Pt Dem LC WR EPP	176	Monthly		C 24 days	25
Postgraduate Pediatrics	University of Washington Seattle 5	B	BC	Pt Dem Sem Lec Pan O AV	18	3/24/58	3/27/58	C 3 days	25

PERIPHERAL VASCULAR DISEASE
(See also Surgery)

Medicine PM 65	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Montefiore Hospital New York 67	G	SCI	IC WR Sem Lec	75	10/ 3/57	4/10/58	I 25 sessions 3 hr weekly Thursdays	125
Medicine PM65A Advanced Peripheral Vascular Surgery	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Montefiore Hospital New York 67	G	SOI	LC WR Sem Lec	51	11/13/57	3/10/58	I 17 sessions 3 hr weekly Wednesdays	150
417-A Peripheral Vascular Disease	New York University Post Graduate Medical School 550 First Ave New York	G	SO	Pt Dem Lec	35	11/18/57	11/22/57	C 5 days	55
418-A Peripheral Vascular Diseases	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Pt Dem Lec	16	4/ 8/58	4/27/58	I 8 sessions 2 hr weekly Tuesdays	45
Medical and Surgical Advances in the Management of Peripheral Vascular Disorders	Frank E Bunts Educational Institute (Cleveland Clinic Foundation) 2020 E 93rd St Cleveland	G	BC	LC Sem Lec Pan O AV	12	4/16/58 Repeated on demand only	4/17/58	C 2 days	20
Peripheral Vascular Disease	University of Pennsylvania Graduate School of Medicine 237 Medical Lab Bldg Philadelphia	G	SOI	Lec AV	10	9/24/57	12/10/57	I 10 sessions 1 hr weekly, Tuesdays	20
Peripheral Vascular Diseases	University of Pennsylvania Graduate School of Medicine 237 Medical Lab Bldg Philadelphia	B	BC	AV Lab Sem Lec Pan O	Unknown	6/26/58	6/28/58	C 2 days	■

Key will be found on page 1774

PHYSICAL MEDICINE & REHABILITATION

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Physical Therapy and Occupational Therapy in the Care of Neuro Muscular Disease	Georgia Warm Springs Foundation Warm Springs Ga	B	SC	Pt Dem LC Lec Pan O AV	36	10/ 7/57 1/ 6/58 4/ 7/58	10/11/57	C 5 days	Nil
Physical Therapy and Occupational Therapy in the Care of Neuro Muscular Disease	Georgia Warm Springs Foundation Warm Springs Ga	G	SC	Pt Dem LC Lec Pan O AV EPP	480	10/ 7/57 1/ 6/58 4/ 7/58	12/21/57	C 90 days	Nil
Physical Therapy and Occupational Therapy in the Care of Neuro Muscular Disease	Georgia Warm Springs Foundation Warm Springs Ga	C	SC	Pt Dem LC Lec Pan O AV EPP	960	10/ 7/57 1/ 6/58 4/ 7/58	3/20/58	C 180 days	Nil
Physical Medicine for Specialists	Robert B Howard M D Continuation Medical Education 1342 Mayo Memorial University of Minnesota Minneapolis 14	S	BC	Pt Dem Lec O	15	11/18/57	11/20/57	C 3 days	30
Arthritis and Physical Medicine for General Physicians	Robert B Howard M D Continuation Medical Education 1342 Mayo Memorial University of Minnesota Minneapolis 14	G	BC	Pt Dem Lec O	15	4/10/58	4/12/58	C 3 days	30
Extensive Course in Physical Medicine and Rehabilitation	University of Buffalo School of Medicine 3435 Main St Buffalo	G	SCI	Pt Dem LC WR Sem Lec Pan O AV FPP	120	10/ 2/57	2/26/58	I 20 sessions 6 hr weekly Wednesdays	300
PM1 Cerebral Palsy	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Columbia Presbyterian Medical Center New York 32	G	SC	LC Lec Pan	105	10/14/57 3/ 3/58	11/ 1/57	C 15 days	100
Physical Medicine and Rehabilitation	Joint Committee on Post Graduate Education 1313 Bedford Ave Brooklyn N Y course at Coney Island Hospital Brooklyn N Y	G	SCI	Pt Dem Lec	10	10/57 4/58	12/57	I 10 sessions 1 hr weekly Thursdays	20
Physical Medicine and Rehabilitation	New York Polyclinic Hospital 345 W 50th St New York	G	SC	Lab Pt Dem Lec AV	144	4/ 1/58	4/30/58	C 24 days	100
621 A Physical Medicine and Rehabilitation	New York University Post Graduate Medical School 550 First Ave New York	S	SC	Pt Dem Lec	70	1/ 2/58	1/15/58	C 10 days	100

PHYSIOLOGY

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Clinical Physiology	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SCI	Lec O	20	9/18/57 3/19/58	11/21/57	I 10 sessions 2 hr weekly Wednesdays	100
PM32 Physiology Normal and Pathological	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Mount Sinai Hospital New York 29	C	SCI	Lec	52	10/ 2/57	4/ 9/58	I 26 sessions 2 hr weekly Wednesdays	150
PM30-Physiology Digestive Tract	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Mount Sinai Hospital New York 29	C	SCI	Lec	36	1/ 8/58	5/ 7/58	I 18 sessions 2 hr weekly Wednesdays	100

PROCTOLOGY

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Proctoscopy and Sigmoidoscopy	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	BCI	Lab Pt Dem LC Sur Lec O FPP	12	9/11/57 10/23/57 11/13/57 1/ 8/58 2/19/58 3/19/58 5/21/58	10/ 2/57	I 4 sessions 3 hr weekly Wednesdays	75
Proctology	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	BCI	Lab Pt Dem LC Sur Lec O AV	8	10/23/57 3/19/58	11/13/57	I 4 sessions 2 hr weekly Wednesdays	75
Proctology for General Physicians	Robert B Howard M D Continuation Medical Education 1342 Mayo Memorial University of Minnesota Minneapolis 14	G	SC	Sur Lec O	30	5/12/58	5/16/58	C 5 days	50
Proctology	Joint Committee on Post Graduate Education 1313 Bedford Ave Brooklyn N Y course at Jewish Hospital Brooklyn N Y	G	SCI	LC Lec	24	10/57 4/58	12/57	I 12 sessions 2 hr weekly Mondays Fridays	40
Proctology (Clinical and Cadaver)	New York Polyclinic Hospital 345 W 50th St New York	G	SC	Lab Pt Dem LC WR S Lec Cad O AV FPP	90	4/ 1/58	5/12/58	C 36 days	17
Postgraduate Refresher Course in Proctology	University of Texas Postgraduate School of Medicine 213 West Avenue G Temple Tex course at Scott and White Memorial Hospitals Scott Sherwood and Brindley Foundation Temple Tex	G	SO	Pt Dem LC WR Sur O	88	Arranged		C 12 days	2

PSYCHIATRY

Treatment of Emotional Problems in Office Practice	University of California Medical Center Los Angeles 24	G	SOI	Sem Lec O	24	9/19/57	12/12/57	I 12 sessions 2 hr weekly Thursdays	60
Advanced Emotional Problems	University of California at Los Angeles Medical Center Los Angeles 24	G	SOI	Sem O	24	Spring/58		I 12 sessions 2 hr weekly	75
Psychiatric Symposium on Sexual Problems	University of Southern California School of Medicine Postgraduate Division 2025 Zonal Ave Los Angeles course at Statler Hotel Los Angeles Room Los Angeles	G	BC	LC Lec Pan O AV	7	9/27/57	9/27/57	C 1 day	Unknown
Child Psychiatry	Catholic University of America Michigan Av N E Washington 17 D C	G	SOI	Sem Lec O	30	10/1/57 2/1/58	6/30/58	I 15 sessions 2 hr twice monthly Fridays	45
Experimental Basis of Psychiatric Theory	Department of the Army Office of the Surgeon General Education and Training Division Washington 25 D C course at Walter Reed Army Medical Center Washington D C	S	SO	Lab WR Sem Lec O AV	160	2/10/58	3/8/58	C 20 days	Nil
Emotional Problems in General Practice	Indiana University School of Medicine 1100 W Michigan St Indianapolis	G	BC	Lec Pan O AV	8	11/14/57	11/14/57	C 1 day	10
Iowa Nebraska Neuropsychiatric Association Meeting	State University of Iowa College of Medicine University Hospitals Iowa City	G	BC	Lec Pan O	9-11	10/26/57	10/27/57	C 1½ days	20
Continuous Case Seminar	American Institute for Psychoanalysis 220 W 98th St New York	S	SOI	Sem	15	9/16/57	11/18/57	I 10 sessions 1½ hr weekly Mondays	60
Clinical Conferences on Case Histories II	American Institute for Psychoanalysis 220 W 98th St New York	S	SOI	Sem	15	9/17/57	11/19/57	I 10 sessions 1½ hr weekly Tuesdays	40
Present Day Perspectives in Psychoanalysis	American Institute for Psychoanalysis 220 W 98th St, New York course at New School for Social Research New York	G	SOI	Lec	22½	9/30/57	1/20/58	I 15 sessions 1½ hr weekly Mondays	24
Readings in Psychoanalysis The Works of Karen Horney	American Institute for Psychoanalysis 220 W 98th St New York	B	SOI	Lec	37½	9/30/57	4/28/58	I 25 sessions 1½ hr weekly Mondays	85
Workshop on Dynamics of Behavior	American Institute for Psychoanalysis 220 W 98th St New York course at New School for Social Research New York	G	SOI	Sem	22½	10/1/57	1/21/58	I 15 sessions 1½ hr weekly Tuesdays	45
Seminar on Child Therapy	American Institute for Psychoanalysis 220 W 98th St New York	B	SOI	Sem	10½	11/22/57	1/10/58	I 7 sessions 1½ hr weekly Fridays	28
Clinical Conferences	American Institute for Psychoanalysis 220 W 98th St New York	S	SOI	Sem	15	11/25/57	2/10/58	I 10 sessions 1½ hr weekly Mondays	50
Introductory Course on Dreams	American Institute for Psychoanalysis 220 W 98th St New York	S	SOI	Lec	15	11/26/57	2/11/58	I 10 sessions 1½ hr weekly Tuesdays	40
Problems in Therapy	American Institute for Psychoanalysis 220 W 98th St New York	S Graduate Psychoanalysts only	SOI	Sem	15	1/17/58	3/21/58	I 10 sessions 1½ hr weekly Fridays	60
The Psychoanalytic Relationship	American Institute for Psychoanalysis 220 W 98th St New York	S	SOI	Sem	22½	2/4/58	5/20/58	I 15 sessions 1½ hr weekly Tuesdays	75
Introduction to Psychoanalytic Technique	American Institute for Psychoanalysis 220 W 98th St New York	S	SOI	Lec	15	2/7/58	4/11/58	I 10 sessions 1½ hr weekly Fridays	40
Our Body Involvement in Emotional Conflict	American Institute for Psychoanalysis 220 W 98th St New York course at New School for Social Research New York	G	SOI	Lec	22½	2/10/58	5/19/58	I 15 sessions 1½ hr weekly Mondays	21
Maturing Fulfillment and Frustration	American Institute for Psychoanalysis 220 W 98th St New York course at New School for Social Research, New York	G	SOI	Lec	22½	2/11/58	5/20/58	I 15 sessions 1½ hr weekly Tuesdays	24
Clinical Conferences on Case Histories I	American Institute for Psychoanalysis 220 W 98th St New York	S	SOI	Sem	15	2/18/58	4/22/58	I 10 sessions 1½ hr weekly Tuesdays	40

*Key will be found on page 1774

PSYCHIATRY—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Psychiatry PM 30 Practical Management of Psychiatric Problems	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Mount Sinai Hospital New York 29	G	SC	LC Lec Pan	35	11/18/57	11/22/57	C 5 days	75
Psychiatry PM 31 Practical Management of Psychiatric Problems	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Mount Sinai Hospital New York 29	G	SCI	IC Lec Pan	35	1/13/58	5/12/58	I 5 sessions 7 hr first Monday each mo	75
Psychoanalysis of Groups	New York Medical College Flower and Fifth Ave Hospitals Fifth Ave and 106th St New York	S	SCI	Lec	Unknown	Arranged		I 10 sessions weekly Fridays	40
Readings in Psychoanalytic Literature (first half)	New York Medical College Flower and Fifth Ave Hospitals Fifth Ave and 106th St New York	B	SCI	Lec	30	Arranged		I 15 sessions 2 hr every other Tuesday	40
Readings in Psychoanalytic Literature—second half	New York Medical College Flower and Fifth Ave Hospitals Fifth Ave and 106th St New York	S	SCI	Lec	30	Arranged		I 15 sessions 2 hr every other Tuesday	40
Introductory Lectures in Child Psychiatry	New York Medical College Flower and Fifth Ave Hospitals Fifth Ave and 106th St New York	S	SCI	Lec	Unknown	Arranged		I 10 sessions weekly Thursdays	40
Social Psychology	New York Medical College Flower and Fifth Ave Hospitals Fifth Ave and 106th St New York	S	SCI	Lec	30	Arranged		I 15 sessions 2 hr weekly Wednesdays	35
Personality Structure and Psychoanalysis	New York Medical College Flower and Fifth Ave Hospitals Fifth Ave and 106th St New York	B	SCI	Lec	20	Arranged		I 10 sessions 2 hr every other Tuesday	40
Psychosomatic Medicine—Autonomic Nervous System and Psychogenesis	New York Medical College Flower and Fifth Ave Hospitals Fifth Ave and 106th St New York	B	SCI	Lec	16	Arranged		I 8 sessions 2 hr every other week	45
701 Continuous Case Seminar	Postgraduate Center for Psychotherapy 218 E 70th St New York	S	SCI	LC Sem	18	10/1/57	12/17/57	I 12 sessions 1½ hr weekly Tuesdays	Unknown
718 Clinical Conferences on Treatment Planning	Postgraduate Center for Psychotherapy 218 E 70th St New York	S	SCI	LC Sem	24	10/1/57	1/21/58	I 16 sessions 1½ hr weekly Tuesdays	Unknown
717 Clinical Conferences	Postgraduate Center for Psychotherapy 218 E 70th St New York	S	SCI	LC Sem	15	10/2/57	12/4/57	I 10 sessions 1½ hr weekly Wednesdays	Unknown
715 Introduction to Psychotherapy and Psychotherapeutic Technique	Postgraduate Center for Psychotherapy 218 E 70th St New York	S	SCI	LC Lec	18	10/2/57	12/18/57	I 12 sessions 1½ hr weekly Wednesdays	Unknown
731 Clinical Conferences	Postgraduate Center for Psychotherapy 218 E 70th St New York	S	SCI	LC Lec	7½	10/2/57 2/12/58	10/30/57	I 5 sessions 1½ hr weekly Wednesdays	Unknown
706 Techniques of Dream Interpretation	Postgraduate Center for Psychotherapy 218 E 70th St New York	S	SCI	LC Sem	15	10/3/57	12/12/57	I 10 sessions 1½ hr weekly Thursdays	Unknown
710 810 Basic Psychiatry and Neurology	Postgraduate Center for Psychotherapy 218 E 70th St New York	S	SCI	LC	Full 24 Spring 22½	10/4/57 (Part II) 2/14/58	1/24/58	I 1½ hr weekly Fridays	Unknown
817 Clinical Conferences Character Disorders	Postgraduate Center for Psychotherapy 218 E 70th St New York	S	SCI	Sem	15	2/10/58	4/21/58	I 10 sessions 1½ hr weekly Mondays	Unknown
804 Continuous Case Seminar	Postgraduate Center for Psychotherapy 218 E 70th St, New York	S	SCI	LC Sem	18	2/11/58	4/22/58	I 12 sessions 1½ hr weekly Tuesdays	Unknown
801 Continuous Case Seminar	Postgraduate Center for Psychotherapy 218 E 70th St New York	S	SCI	LC Sem	22½	2/12/58	5/28/58	I 15 sessions 1½ hr weekly Wednesdays	Unknown
818 The Borderline Patient	Postgraduate Center for Psychotherapy 218 E 70th St New York	S	SCI	LC Lec	22½	2/12/58	5/28/58	I 15 sessions 1½ hr weekly Wednesdays	Unknown
806 Continuous Case Seminar	Postgraduate Center for Psychotherapy 218 E 70th St New York	S	SCI	LC Sem	15	3/19/58	5/28/58	I 10 sessions 1½ hr weekly Wednesdays	Unknown
Modern Conceptions of Psychoanalysis III—Psychologic Contributions of Harry Stack Sullivan	The William Alanson White Institute of Psychiatry Psychoanalysis and Psychology 12 E 86th St New York	S	SCI	Lec O	9	10/1/57	12/10/57	I 6 sessions 1½ hr every other Tuesday	20

Evolution of Psychoanalytic Concepts A 3	The William Alanson White Institute of Psychiatry Psychoanalysis and Psychology 12 E 86th St New York	G	SOI	Sem Lec O	10½	10/2/57	12/18/57	I 11 sessions 1½ hr weekly on Wednesdays	35
The Significance of Physical Symptoms in Personality Disorders A 11	The William Alanson White Institute of Psychiatry Psychoanalysis and Psychology 12 E 86th St New York	G	SOI	Sem Lec O	12	10/3/57	11/21/57	I 8 sessions 1½ hr weekly Thursdays	25
Thought Processes Symbols and Forms CS 18	The William Alanson White Institute of Psychiatry Psychoanalysis and Psychology 12 E 86th St New York	S	SOI	Lec O	10½	10/1/57	12/20/57	I 7 sessions 1½ hr every other Friday	30
Interpersonal Factors Involved in Clinical Psychotherapy with Adolescents CS 34	The William Alanson White Institute of Psychiatry Psychoanalysis and Psychology 12 E 86th St New York	S	SCI	Sem O	15	10/7/57	12/9/57	I 10 sessions 1½ hr weekly Mondays	35
Law and Psychiatry CS 4	The William Alanson White Institute of Psychiatry Psychoanalysis and Psychology 12 E 86th St New York	S	SOI	Sem O	20	1/10/58	5/16/58	I 10 sessions 2 hr every other Friday	40
Some Philosophic Problems Relevant to Psychoanalysis C 6	The William Alanson White Institute of Psychiatry Psychoanalysis and Psychology 12 E 86th St New York	S	SCI	Lec O	15	1/10/58	5/16/58	I 10 sessions 1½ hr every other Friday	45
Basic Principles AS 1 Introduction to theory of interpersonal relationships	The William Alanson White Institute of Psychiatry Psychoanalysis and Psychology 12 E 86th St New York	G	SOI	Lec O	10½	1/21/58	6/10/58	I 11 sessions 1½ hr every other Tuesday	45
Case Seminar on Clinic Treatment of Adolescents CS 10	The William Alanson White Institute of Psychiatry Psychoanalysis and Psychology 12 E 86th St New York	S	SCI	Sem Lec O	10	1/27/58	5/5/58	I 8 sessions 2 hr every other Monday	35
Literature of Psychoanalysis Part I A 10	The William Alanson White Institute of Psychiatry Psychoanalysis and Psychology 12 E 86th St New York	G	SCI	Lec O	10½	1/28/58	6/17/58	I 11 sessions 1½ hr every other Tuesday	35
Anthropology and the Comparative Study of Civilization A 4	The William Alanson White Institute of Psychiatry Psychoanalysis and Psychology 12 E 86th St New York	G	SCI	Lec O	15	1/31/58	6/6/58	I 10 sessions 1½ hr every other Friday	40
Abnormal Psychology of the Child AF 9	The William Alanson White Institute of Psychiatry Psychoanalysis and Psychology 12 E 86th St New York	S	SOI	Lec O	12	2/12/58	5/21/58	I 8 sessions 1½ hr every other Wednesday	35
Seminar on Current Issues in Psychoanalysis CS 14	The William Alanson White Institute of Psychiatry Psychoanalysis and Psychology 12 E 86th St New York	S	SOI	Sem O	12	2/13/58	5/22/58	I 8 sessions 1½ hr every other Thursday	25
Research in the Behavioral Sciences C 3	The William Alanson White Institute of Psychiatry Psychoanalysis and Psychology 12 E 86th St New York	S	SCI	Lec O	9	2/20/58	5/1/58	I 6 sessions 1¼ hr every other Thursday	30
Course I For Psychiatrists Who Desire to Specialize in the Practice of Psychoanalysis	Institute of the Philadelphia Association for Psychoanalysis 122 S 18th St Philadelphia	S	SO	Sem Lec	453	9/57	6/58	C 123 days	400 a yr
Course III For Psychoanalytic Students Who Desire to Specialize in the Practice of Psychoanalysis of Children	Institute of the Philadelphia Association for Psychoanalysis 122 S 18th St Philadelphia	S	SO	Sem Lec	250+	9/57	Unknown	C 60+ days	1 50 an hr
Institute of Psychiatric Treatment New Techniques	Institute of Psychiatric Treatment 433 Marlborough St Boston 15 course at Philadelphia State Hospital Philadelphia	S	BO	Pt Dem LC Sem Lec O EPP	21	10/17/57	10/19/57	C 3 days	35
Psychotherapy for Physicians Introductory	Chief Staunton Clinic Dept of Psychiatry University of Pittsburgh Pittsburgh course at Falk Clinic Pittsburgh	G	SCI	Sem O	24	9/4 5/57	11/20-21/57	I 12 sessions 2 hr weekly Wed or Thurs	40
Psychotherapy for Physicians Introductory	Chief Staunton Clinic Dept of Psychiatry University of Pittsburgh Pittsburgh course at Falk Clinic Pittsburgh	for those enrolled last year	SCI	Sem O	24	11/27/57 3/5/58		I 12 sessions 2 hr weekly Wednesdays or Thursdays	40
Office Psychiatry	University of Tennessee College of Medicine 62 S Dunlap Memphis Tenn	G	BO	Pt Dem WR Lec Pan O AV	24	1/29/58	1/31/58	C 3 days	50
PULMONARY DISEASE (See also Radiology)									
Recent Advances in Chest Diseases	City of Hope Medical Center 1500 E Duarte Rd Duarte Cal	G	BC	Pt Dem LC Lec Pan O AV	19½	11/6/57	11/8/57	C 3 days	10 per day or 25 for entire course
Tenth Annual Symposium on Pulmonary Diseases	Department of the Army Office of the Surgeon General Education and Training Division Washington 25 D C course at Fitzsimons Army Hospital Denver	B	SO	Pt Dem LC Lec Pan	40	9/16/57	9/20/57	C 5 days	5 for non military registrants
Tenth Annual Symposium on Pulmonary Diseases	Office of Postgraduate Medical Education University of Colorado School of Medicine 4200 E Ninth Ave Denver 20 course at Fitzsimons Army Hospital Denver 20	B	SO	Pt Dem Sem Lec Pan	40	9/16/57	9/20/57	C 5 days	5

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PULMONARY DISEASE—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Clinical Bronchoscopy	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SC	Lab Pt Dem LC, Lec O EPP	15	9/16/57 10/21/57 11/18/57 12/ 9/57 1/20/58 2/17/58 3/17/58 4/14/58 5/19/58 6/16/58	9/20/57	C 5 days	100
Pulmonary Function Correlated with Clinical Pulmonary Disease	Indiana University School of Medicine 1100 W Michigan St Indianapolis	G	BC	Pt Dem Lec Pan O AV	16	1/27/58	1/28/58	C 2 days	20
12th Annual Postgraduate Course in Diseases of the Chest	American College of Chest Physicians 112 E Chestnut St Chicago 11 course at Knickerbocker Hotel Chicago	G	SC	Lec Pan O AV	40	10/21/57	10/25/57	C 5 days	75
Postgraduate Course in Diseases of the Chest	American College of Chest Physicians 112 E Chestnut St Chicago 11 course at Ambassador Hotel Los Angeles	G	SC	Lec Pan O AV	40	12/ 9/57	12/13/57	C 5 days	75
10th Annual Postgraduate Course on Diseases of the Chest	American College of Chest Physicians 112 E Chestnut St Chicago 11 course at Park Sheraton Hotel New York	G	SC	Lec Pan O AV	40	11/11/57	11/15/57	C 5 days	75
Clinical Traineeship in Pulmonary Disease	University of Kansas Medical Center 39th and Rainbow Blvd Kansas City Ks	G	MT	Lab Pt Dem LC WR Sem Lec Pan O AV	Approx 160	11/ 1/57 1/ 2/58 5/ 1/58	11/30/57	Approx 30 days	50 per mo for residents of Kansas 100 per mo for non residents
Pulmonary Diseases	University of Kansas Medical Center 39th and Rainbow Blvd Kansas City Ks	G	BC	Pt Dem LC WR Sem Lec Pan O AV TV	14	1/13/58	1/14/58	C 2 days	30
The Measurement of Pulmonary Function in Health and Disease	American Trudeau Society Edward J Welch M D Chairman 1101 Beacon St Brookline Mass course at Boston City Hospital Boston	S	SC	Lab Pt Dem Sem Lec Pan O AV	35	3/24/58	3/28/58	C 5 days	75
Pulmonary Diseases	University of Michigan Medical School Department of Postgraduate Medicine University Hospital Ann Arbor Mich	G	SC	Pt Dem Lec O AV	30	3/24/58	3/28/58	C 5 days	50
Clinical Course in Pulmonary Diseases	Albany Medical College Albany N Y course at Veterans Administration Hospital Albany N Y	G	SC	Pt Dem LC WR Sem Lec O	40	Unknown		C, 5 days	60
PM80 Medicine Diseases of the Chest	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Bellevue Hospital New York	G	SC	LC WR Lec	Approx 140	10/ 1/57 2/ 3/58	10/31/57	C 20 days or more	125 for first mo , 75 each additional mo
Medicine PM71 Diseases of the Chest	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Montefiore Hospital New York 67	G	SCI	Sem Lec WR	50	1/ 7/58	5/27/58	I 20 sessions 2½ hr weekly Tuesdays	100
Diseases of the Chest Acute and Chronic	New York Medical College Flower and Fifth Ave Hospitals Fifth Ave and 106th St New York	G	SCI	Pt Dem WR Pan	28	Arranged		I 8 sessions 3½ hr weekly, Thursdays	100
M122 A Acute and Chronic Diseases of the Chest	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Pt Dem Lec	16	4/ 7/58	4/26/58	I unknown	40
Sixth Annual Symposium for General Practitioners on Tuberculosis and other Chronic Pulmonary Diseases	Trudeau Foundation and Ray Brook State Tuberculosis Hospital 7 Church St, Saranac Lake N Y and Ray Brook N Y	G	SC	Pt Dem LC WR Lec Pan O	26	7/ 7/58	7/11/58	C 5 days	40
Current Problems in Pulmonary Diseases	Ohio Tuberculosis Hospital Nell C Andrews M D Ohio State University Campus Columbus 10 Ohio course at Ohio State University Student Union Bldg Columbus 10 Ohio	G	BC	Pt Dem Lec Pan O AV	10	9/27/57	9/28/57	C 2 days	25
Diseases of the Chest	University of Pennsylvania Graduate School of Medicine [illegible]37 Medical Lab Bldg Philadelphia	G	SCI	Sem Lec O AV	15	10/ 7/57	1/27/58	I 15 sessions 1 hr weekly Mondays	25
Postgraduate Refresher Course in Diseases of the Chest	University of Texas Postgraduate School of Medicine [illegible]13 W Avenue G Temple Tex course at Scott and White Memorial Hospital Scott Sherwood and Brindley Foundation Temple Tex	G	SC	Lab Pt Dem LC WR Sur Lec Pan O AV	88	Unknown		C 12 days	25

RADIOLOGY

Cardiac Roentgenology	University of California Medical Center Los Angeles 24	G	BO	Lec Pan IV	24	10/10/57	10/19/57	C 4 days	Unknown
Fundamental Principles and Clinical Aspects of Radioactive Therapy	University of California at Los Angeles Medical Center Los Angeles 24	G	BC	Lec Pan O AV	15	Spring/58		C 2½ days	Unknown
The Physics of Diagnostic and Therapeutic Radiology	University of Southern California Postgraduate Division 2025 Zonal Ave Los Angeles 33 course at Los Angeles County Hospital Los Angeles	S (physicians preparing for specialty of radiology also dermatology)	SCI	Lec	20	9/ 6/57	1/24/58	I 20 sessions 1 hr weekly Fridays	50
882a Lectures in the Physics and Clinical Application of Radioactive Isotopes	University of Southern California School of Medicine Postgraduate Division 2025 Zonal Ave Los Angeles	S	SCI	LC Lec O	20	Spring/58		I 20 sessions 1 hr weekly Fridays	50
882b Practical Experience in the Laboratory Techniques Needed for Working with Radioactive Isotopes	University of Southern California School of Medicine Postgraduate Division 2025 Zonal Ave Los Angeles	S	SO	Unknown	Unknown	Arranged		C Arranged	350
882c Supervised Clinical Experience with Radioactive Isotopes	University of Southern California School of Medicine Postgraduate Division 2025 Zonal Ave Los Angeles	S	MT	MP	Unknown	Arranged		Arranged	165
Radiology Physics and Medical Use of Isotopes	University of Colorado School of Medicine 4200 E Ninth Ave Denver 20	B	SCI	Lec	Unknown	9/57	5/58	I once weekly Tuesdays for 9 mo	10
Radiology 302 Introduction to X rays and Radioisotopes	Assistant Dean of Postgraduate Medical Education Yale University School of Medicine 333 Cedar St New Haven Conn	S	SCI	Lec	11	9/20/57	12/12/57	I 11 sessions 1 hr weekly Thursdays	25
Radiology 303 X Ray Physics	Assistant Dean of Postgraduate Medical Education Yale University School of Medicine 333 Cedar St New Haven Conn	S	SOI	Lab Lec	20	1/ 9/58	3/13/58	I 10 sessions 2 hr weekly Thursdays	40
Radiology 304 Radioactivity	Assistant Dean of Postgraduate Medical Education Yale University School of Medicine 333 Cedar St New Haven Conn	S	SCI	Lab Lec	30	3/20/58	5/22/58	I 10 sessions 3 hr weekly Thursdays	150
Radioisotopes	Emory University School of Medicine Emory University Atlanta Ga	Unknown	SO	Unknown	Unknown	9/57	9/57	C 5 days	Unknown
Course II—Clinical Radiology	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SC	Lab Pt Dem LO WR Lec O AV	100	Arranged		C 4 wk	125
Course III—Clinical Radiology	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SC	Lab Pt Dem LC, Lec O AV	50	Arranged		C 2 wk	70
Course III—X Ray Therapy	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SO	Lab Pt Dem LO WR Sur Lec O AV	30-240	Arranged		C 1 2 4 or 8 wk later	60-300
Course I—Diagnostic Radiology	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SO	Lab Pt Dem LC, Lec O AV	68	9/16/57 12/ 2/57 2/ 3/58 4/28/58	9/28/57	C 12 days	125
Diagnostic Roentgenology	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SCI	Lab Pt Dem LO Lec O EPP	40	9/18/57 3/19/58	11/21/57	I 10 sessions 4 hr weekly Wednesdays	100
Clinical Uses of Radioisotopes	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SCI	Lab Pt Dem LO WR Lec O EPP	60	9/18/57 3/19/58	11/20/57	I 10 sessions 6 hr weekly Wednesdays	200
The Clinical Uses of Radioisotopes	Cook County Graduate School of Medicine 707 S Wood St Chicago	S	SC	Lab Pt Dem LO Lec O AV EPP	60	10/ 7/57 5/ 5/58	10/18/57	C 10 days	200
The Clinical Use of Radioactive Iodine	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SC	Lab Pt Dem LO WR Lec O AV EPP	30	3/31/58	4/ 4/58	C 5 days	100
Radium Therapy	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SC	Lab Pt Dem LC WR Lec O AV EPP	30	6/23/58	6/27/58	C 5 days	100
Radiation Physics	Northwestern University Medical School 303 E Chicago Ave Chicago	S	SOI	Lec	34	1/13/58	5/ 5/58	I 17 sessions 2 hr weekly Mondays	35
Radiation Physics	Indiana University School of Medicine 1100 W Michigan Indianapolis	S	SOI	Lec O AV	20	10/ 2/57	2/26/58	I 20 sessions 1 hr weekly Wednesdays	100
Genitourinary Radiology	Indiana University School of Medicine 1100 W Michigan Indianapolis	G	SOI	Lec O AV	5	10/ 3/57	10/31/57	I 5 sessions 1 hr weekly Thursdays	25

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RADIOLOGY—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Radiation Therapy	Indiana University School of Medicine 1100 W Michigan Indianapolis	G	SCI	Pt Dem Lec O AV	30	10/ 7/57	5/26/58	I 30 sessions 1 hr weekly Mondays	Varies
Non traumatic Orthopedic Radiology	Indiana University School of Medicine 1100 W Michigan Indianapolis	S	SCI	Lec O AV	8	11/ 7/57	12/26/57	I 8 sessions 1 hr weekly Thursdays	10
Radiology of Acute Abdomen	Indiana University School of Medicine 1100 W Michigan Indianapolis	G	BCI	Lec O AV	4	2/ 6/58	2/27/58	I 4 sessions 1 hr weekly Thursdays	20
Clinical Use of Radioisotopes	Indiana University School of Medicine 1100 W Michigan Indianapolis	G	SC	Lab Pt Dem Lec O AV EPP	100	4/ 7/58	4/18/58	C 12 days	200
Neuroradiology	Indiana University School of Medicine 1100 W Michigan Indianapolis	S	SCI	Lec O AV	5	5/ 1/58	5/29/58	I 5 sessions 1 hr weekly Thursdays	25
Radiology	State University of Iowa College of Medicine University Hospital Iowa City	G	BC	Lec Pan O AV	9 11	10/25/57	10/26/57	C 1½ days	20 (no charge for members of the Iowa Radiological Society)
Radiology and Radioactive Isotopes	University of Kansas Medical Center 39th and Rainbow Blvd Kansas City Ks	S	BC	Pt Dem Lec Pan O AV	28	2/10/58	2/13/58	C 4 days	50
Radiological Physics	University of Kansas Medical Center 39th and Rainbow Blvd Kansas City Ks	S	SCI	Lec	20	2/58	4/58	I 10 sessions 2 hr weekly, Sundays	30 5 for re-enrollment
Diagnostic Radiology	Tulane University School of Medicine 1430 Tulane Ave New Orleans	B	BC	Pt Dem WR Sem Lec	16	1/23/58	1/24/58	C 2 days	25
Clinical Radioisotope Techniques	U S Naval Medical School National Naval Medical Center Bethesda 14 Md	S	MT	Lab Pt Dem LC WR Sem Lec Pan AV EPP	760	1/20/58	5/31/58	95 days	Unknown
Pediatric Radiology	Harvard Medical School Courses for Graduates 25 Shattuck St Boston course at Children's Hospital Boston	G	SC	Lab Pt Dem LC Lec O	120 to 130 a mo	Arranged		C 26 days a mo	150 a mo
General Radiology 1	Harvard Medical School Courses for Graduates 25 Shattuck St Boston course at Peter Bent Brigham Hospital Boston	S	SC	Lab Pt Dem LC Lec	120 to 130 a mo	Arranged		Arranged	150 a mo
General Radiology 2	Harvard Medical School Courses for Graduates 25 Shattuck St Boston course at Massachusetts General Hospital Boston	S	SC	Lab Pt Dem LC Lec O	120 to 130 a mo	Arranged		C 26 days a mo	150 a mo
General Radiology 3	Harvard Medical School Courses for Graduates 25 Shattuck St Boston course at Boston City Hospital Boston	S	SC	Lab Pt Dem LC Lec O	120 to 130 a mo	Arranged		C 26 days a mo	150 a mo
Diagnostic Radiology	University of Michigan Medical School Department of Postgraduate Medicine University Hospital Ann Arbor Mich	G	SC	Lec Dem, O AV	20	4/ 7/58	4/11/58	C 5 days	50
Cardiovascular Radiology for Specialists	Robert B Howard M D Continuation Medical Education 1342 Mayo Memorial University of Minnesota Minneapolis 14	S	SC	Sem Lec Pan O	33	11/ 4/57	11/ 9/57	C 6 days	75
Radiology for General Physicians	Robert B Howard M D Continuation Medical Education 1342 Mayo Memorial University of Minnesota Minneapolis 14	G	BC	Lec O	15	4/ 7/58	4/ 9/58	C 3 days	30
X Ray Diagnosis	Meadowbrook Hospital Carman Ave and Bethpage Turnpike Hempstead N Y	G	SCI	Sem Lec Pan	15	10/ 2/57	4/30/58	I 15 sessions 1 hr every other Wednesday	30
Operative Radium Therapy	Queens General Hospital 82-68 164th St Jamaica N Y	S	SCI	Lab Pt Dem LC Sem Lec O	24	1/ 4/58	2/22/58	I 8 sessions 3 hr weekly Saturdays	100
Medical Uses of Radioactive Isotopes	Queens General Hospital 82-68 164th St Jamaica 32 N Y	S	O—Training for AEC certif	Lab Pt Dem LC WR Sem Lec Pan O AV EPP	90	2/18/58	6/17/58	17 days	[illegible]
Radiology [illegible] of Radioactive Iodine	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 [illegible] Mount Sinai [illegible] New York [illegible]	S	SC	Lab Pt Dem LC Lec	144 (approximately)	9/57 12/57 3/58	11/57	O approximately 48 days	300

PM 31 Radiology Chest	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Mount Sinai Hospital New York 29	G	SO	Lec	10½	9/30/57 3/17/58	10/ 8/57	C 7 days	50
Radiology PM 80 Diagnosis Diseases Bones and Joints	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Hospital for Joint Diseases New York 35	G	SOI	Lec AV	24	10/ 2/57	12/18/57	I 12 sessions 2 hr weekly Wednesdays	150
Radiology PM 41 Clinical Use of Radioactive Isotopes	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Mount Sinai Hospital New York 29	S	SOI	Lab Lec	102	10/ 7/57	5/26/58	I 34 sessions 3 hr weekly Mondays	300
Radiology PM 34 Chest Disease Differential Diagnosis	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Mount Sinai Hospital New York 29	G	SOI	Pt Dem LO	15	10/14/57 3/31/58	12/16/57	I 10 sessions 1½ hr weekly Mondays	50
Radiology PM 1 Radiological Physics	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Columbia Presbyterian Medical Center New York 32	S	SOI	Lec	34	1/ 7/58	5/ 1/58	I 34 sessions 1 hr twice weekly Tuesdays and Thursdays	50
PM 32 Radiology Gastrointestinal Tract	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Mount Sinai Hospital New York 29	G	SO	Lec	10	3/ 3/58	3/14/58	C 10 days	50
Radiology PM 40 Clinical Use of Radioactive Isotopes	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Mount Sinai Hospital New York 29	S	SO	Lab Lec	140	6/ 2/58	6/27/58	C 20 days	300
Radiology PM 51 Radiotherapy	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Mount Sinai Hospital New York 29	S	SO	Lab LO Lec EPP	6 or 12 mos	Arranged		O 6 or 12 mos	300 for 6 mos 600 for 12 mos
Roentgen Diagnosis in Gastroenterology	Joint Committee on Postgraduate Education 1313 Bedford Ave Brooklyn N Y course at Beth El Hospital Brooklyn N Y	G	SCI	Lec	8	10/57 4/58	12/57	I 8 sessions 1 hr weekly Tuesdays	20
X Ray Diagnosis of Chest Diseases	Joint Committee on Post Graduate Education 1313 Bedford Ave Brooklyn N Y course at Beth El Hospital Brooklyn N Y	G	SCI	Lec	8	4/58	6/58	I 8 sessions 1 hr weekly Thursdays	20
Diagnostic Roentgenology	New York Medical College Flower and Fifth Ave Hospitals Fifth Ave and 106th St New York	G	SC	Pt Dem Sem Lec	Arranged	Arranged		C Arranged	150
Radium and Roentgen Therapy	New York Medical College Flower and Fifth Ave Hospitals Fifth Ave and 106th St New York	G	SC	Lec	Arranged	Arranged		C Arranged	150
Roentgen Interpretation	New York Polyclinic Hospital 345 W 50th St New York	G	SO	Lec	480	4/ 1/58	6/30/58	C 72 days	300
657 A Radiological Aspects of Medicolegal Medicine	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Lec Dem AV	18	9/24/57	12/10/57	I 12 sessions 1½ hr weekly Tuesdays	35
651 A Diagnostic Radiology for General Practitioners	New York University Post Graduate Medical School 550 First Ave New York	G	SOI	Lec Dem AV	64	9/25/57	4/30/58	I 32 sessions 2 hr weekly Wednesdays	125
655 A Clinical Radiation Therapy	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Sem Lec	36	10/ 2/57	1/29/58	I 18 sessions 2 hr weekly Wednesdays	100
654 A Radiobiology	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Sem Lec	30	2/ 5/58	5/28/58	I 20 sessions 1½ hr weekly Wednesdays	75
658 A Radioactive Isotopes	New York University Post Graduate Medical School 550 First Ave New York	G	SO	Lab	154	By arrangement		O 1 month	150
Roentgen Diagnosis	University of Cincinnati College of Medicine Cincinnati course at Cincinnati General Hospital Cincinnati	S	SO	Pt Dem Sem Lec Pan O	44	6/24/58	6/29/58	O 6 days	150
Radiology	University of Tennessee College of Medicine 62 S Dunlap Memphis Tenn	G	SO	Pt Dem WR Lec Pan O	40	3/24/58	3/28/58	C 5 days	75
Clinical Use of Radioisotopes	University of Tennessee College of Medicine 62 S Dunlap Memphis Tenn	S	SO	Pt Dem WR Lec Pan O AV	80	5/ 5/58	5/16/58	C 10 days	100

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RADIOLOGY—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Basic Course in Radioisotope Techniques	Oak Ridge Institute of Nuclear Studies P O Box 117 Oak Ridge Tenn	S	SC	Lab Pt Dem LC Sem Lec AV FPP	103	9/ 9/57	10/ 4/57	C 20 days	25

SURGERY

(See also Anatomy Pathology Radiology and General Practice)

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Surgery and Surgical Specialties (Full time Basic Science Course)	College of Medical Evangelists 1720 Brooklyn Ave Los Angeles 33	C	SC	WR Sur Sem Cad Lec Pan	Over 1200	9/29/57	6/ 6/58	C 162 days	800 plus books
General Surgery	University of California at Los Angeles Medical Center Los Angeles 24	C	SCI	Lec Pan O AV	24	Spring/58		I 12 sessions 2 hr weekly	Unknown
Minor Surgery	University of California at Los Angeles Medical Center Los Angeles 24	G	BC	Lec Pan Cad O AV	7	Spring/58		C 1 day	25
Surgical Diagnosis in General Practice	University of Southern California School of Medicine Postgraduate Division 2025 Zonal Ave Los Angeles 33	G	BC	Pt Dem LC Lec, Pan O	23	1/24/58	1/26/58	C 3 days	75
A Series of Postgraduate Surgical Programs	U S Veterans Administration Hospital Fort Miley 42nd Ave and Clement St San Francisco 21	C	SCI	Lab Pt Dem LC Sem Lec Pan	12	9/17/57	10/22/57	I 6 sessions 2 hr weekly Tuesdays	Unknown
Surgery in Acute Trauma	Department of the Army Office of the Surgeon General Education and Training Division Washington 25 D C course at Letterman Army Hospital San Francisco	B	BC	Sem Lec Pan O AV	24	3/31/58	4/ 2/58	C 3 days	Nil
Oral Surgery	Department of the Army Office of the Surgeon General Education and Training Division Washington 25 D C course at Letterman Army Hospital San Francisco	G	SC	Pt Dem WR Sur Lec Pan	36	4/21/58	4/25/58	C 5 days	Nil
Surgery in Acute Trauma	Department of the Army Office of the Surgeon General Education and Training Division Washington 25 D C course at Fitzsimons Army Hospital Denver	B	BC	Lec	21	4/ 1/58	4/ 3/58	C 3 days	Nil
Oral Surgery—Diagnosis and Treatment	Department of the Army Office of the Surgeon General Education and Training Division Washington 25 D C course at Walter Reed Army Medical Center Washington D C	G	SC	Pt Dem LC O Sur Lec Pan AV TV	40	1/ 6/58	1/10/58	C 5 days	Nil
Professor Pro Tempore Surgery	Mount Sinai Hospital of Greater Miami 4300 Alton Rd Miami Beach Fla	S	SC	Pt Dem LC WR Sur Lec O AV	30	12/57	Unknown	C 6 days	Unknown
Treatment of Varicose Veins	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	BC	Lab Pt Dem LC WR Sur Lec O AV FPP	10	9/ 9/57 10/14/57 11/18/57 12/16/57 2/ 3/58 3/ 3/58 4/28/58 6/ 9/58	9/10/57	C 2 days	Unknown
The Vaginal Approach to Pelvic Surgery	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SC	Lab Pt Dem LC WR Sur Lec O AV	20	9/ 9/57 10/14/57 2/ 3/58 3/ 3/58 4/28/58 6/ 9/58	9/13/57	C 5 days	125
Surgery of the Colon and Rectum	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SC	Lab Pt Dem LC WR Sur Lec O AV	35	9/16/57 10/ 7/57 11/18/57 3/ 3/58 4/ 7/58 5/ 5/58 6/ 9/58	9/20/57	C, 5 days	125
Course I in Surgical Technic in General Surgery	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SC	Lab Pt, Dem LC WR Sur Lec O AV FPP	90	9/16/57 10/28/57 11/11/57 12/ 2/57 1/27/58 2/10/58 2/24/58 3/24/58 4/ 7/58 4/28/58 5/12/58 6/ 2/58 7/21/58 8/18/58	9/28/57	C 12 days	250

Clinical Surgery	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SCI	Lab Lt Dem LC Sur Lec O	40	9/18/57 3/19/58	11/21/57	I 10 sessions 4 hr weekly Wednesday	150
2 Week Course in General Surgery	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SC	Lab Pt Dem LC WR Sur Lec O AV	70	9/23/57 5/ 5/58	10/ 5/57	C 12 days	200
Esophageal Surgery	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SC	Lab Pt Dem LC WR Sur Lec O AV	25	9/30/57 6/16/58	10/ 4/57	C 5 days	150
Thoracic Surgery	Cook County Graduate School of Medicine 707 S Wood St Chicago	Unknown	SC	Lab Pt Dem LC WR Sur Lec O AV	30	10/ 7/57 6/ 9/58	10/12/57	C 6 days	12
Basic Principles in General Surgery	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SC	Lab Pt Dem LC WR Sur Lec O AV	85	10/14/57 1/13/58 4/ 7/58 7/ 7/58	10/28/57	C 12 days	200
Breast and Thyroid Surgery	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SC	Lab Pt Dem LC WR Sur Lec O AV	31	10/21/57 6/16/58	11/ 2/57	C 6 days	150
Course in General Surgery	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SC	Lab Pt Dem LC WR Sur Lec O AV	25	10/28/57 2/10/58 5/12/58	11/ 1/57	C 5 days	1 0
Gallbladder Surgery	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	BC	Lab Pt Dem LC WR Sur Lec O AV	10	11/ 4/57 4/ 7/58 6/23/58	11/ 6/57	C 3 days	80
Gynecologic Surgery	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SCI	Lab Pt Dem LC WR Sur Lec O	20	11/ 6/57 4/30/58	12/ 4/57	I 5 sessions 4 hr weekly Wednesdays	100
Surgery of Hernia	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	BC	Lab Pt Dem LC WR Sur Lec O AV	13	11/ 7/57 4/10/58 6/2[illegible]/58	11/ 9/57	C 3 days	80
Surgical Technic with Practice	Cook County Graduate School of Medicine 707 S Wood St Chicago	C	SCI	Lab Sur Lec O AV EPP	25	11/27/57	1/ 8/58	I [illegible] sessions [illegible] hr weekly Wednesdays	125
Surgical Management of Gastrointestinal Anomalies in Infants	Indiana University School of Medicine 1100 W Michigan St Indianapolis	G	BC	Lec Pan O AV	8	12/10/57	12/19/57	C 1 day	10
Surgery	State University of Iowa College of Medicine University Hospital Iowa City	S	BC	Pt Dem LC WR Lec Pan O AV	14-16	9/ 4/58	2/ 5/58	C 2 days	30
Surgery - Operative Clinic	University of Kansas Medical Center 39th and Rainbow Blvd Kansas City Ks	C	BCI	Pt Dem Sur Lec Pan O AV TV	32	11/21/57	3/20/58	I 4 sessions 8 hr weekly Thursdays	50
Surgery	University of Kansas Medical Center 39th and Rainbow Blvd Kansas City Ks	G	BC	Lt Dem LC WR Sem Lec Pan O AV TV	28	1/20/58	1/23/58	C 4 days	60
Vascular Surgery (by Invitation)	Tulane University School of Medicine 1430 Tulane Ave New Orleans	S on invitation	SC	Pt Dem WR Sem Lec Pan		2/24/58	2/28/58	C 5 days	100
General Surgery I	Harvard Medical School Courses for Graduate 25 Shattuck St Boston course at Massachusetts General Hospital Boston	G	SC	Lt Dem LC WR Lec O	150 (approximately)	10/21/57 5/19/58	11/15/57	C 23 days	250
Clinical Exercises in Surgery for Practitioners	University of Michigan Medical School Department of Postgraduate Medicine University Hospital Ann Arbor Mich	C	SCI	Pt Dem LC Lec O	76	10/ 9/57	3/12/58	I 21 sessions 4 hr weekly Wednesdays	65
Emergency Surgery for General Physicians	Robert B Howard M D Continuation Medical Education 1342 Mayo Memorial University of Minnesota Minneapolis 14	G	BC	Lec O	15	1/30/58	[illegible]/ 1/58	C 3 days	30
Surgery for Surgeons	Robert B Howard M D Continuation Medical Education 1342 Mayo Memorial University of Minnesota Minneapolis 14	S	BC	Sur Lec O	15	5/[illegible]/58	5/24/58	C 3 days	30
In Hospital Review in Surgery	University of Nebraska College of Medicine 42nd and Dewey Omaha	G	MI	Pt Dem LC WR S Sem Lec Pan EPP	48	10/ 7/57	10/12/57	6 days	55
Recent Advances in Surgery	St Michael's Hospital 306 High St Newark N J	C	SCI	Pt Dem Lec Pan O AV	16	10/19/57	2/15/58	I 8 sessions 2 hr weekly Saturdays	25
Office Surgery and Proctology	Meadowbrook Hospital Carman Ave and Bethpage Turnpike Hempstead N Y	G	SCI	Pt Dem LC WR Sem Lec Pan	22½	10/11/57	12/18/57	I 20 sessions 1 hr and 1½ hr twice weekly Wednesdays Fridays	35

Key will be found on page 1774

SURGERY—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Surgery PM 32 Gastrointestinal Tract	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Mount Sinai Hospital New York 29	S	SC	Pt Dem WR Sur Lec EPP	120	11/ 4/57	11/29/57	C 20 days	200
Medicine PM 64 Surgical Treatment of Heart Disease	Columbia University College Physicians and Surgeons 630 W 168th St New York course at Montefiore Hospital New York	C	SCI	Pt Dem WR Sem Lec	60½	9/24/57 2/ 4/58	1/28/58	I 18 sessions 3½ hr weekly Tuesdays	150 each semester
Medicine PM 65A Advanced Course in Peripheral Vascular Surgery	Columbia University College Physicians and Surgeons 630 W 168th St New York course at Montefiore Hospital New York	G	SCI	S Lec AV	57	11/13/57	3/19/58	I 19 sessions 3 hr weekly Wednesdays	150
Othopedic Surgery PM 1 Musculoskeletal Disease and Injury	Columbia University College Physicians and Surgeons 630 W 168th St New York 32 course at Columbia Presbyterian Medical Center New York 32	S	SC	Lec O	35	1/ 6/58	1/10/58	C 5 days	100
Office Surgery	Joint Committee on Postgraduate Education 1313 Bedford Ave Brooklyn N Y course at St Johns Episcopal Hospital Brooklyn N Y	G	SCI	Lec AV	12	10/57	12/57	I 8 sessions 1½ hr weekly Tuesdays	20
Thoracic Surgery	New York Medical College Flower and Fifth Ave Hospitals Fifth Ave and 106th St New York	S	SC	LC Sur Sem Lec	Arranged	Arranged		C Arranged	300
Surgical Aspects of Peripheral Vascular Diseases	New York Medical College Flower and Fifth Ave Hospitals Fifth Ave and 106th St New York	C	SC	Lec	Arranged	Arranged		C Arranged	200
Surgical Technique	New York Medical College Flower and Fifth Ave Hospitals Fifth Ave and 106th St New York	B	SC	Lab Sem Lec	Arranged	Arranged		C Arranged	375
Gastrointestinal Surgery	New York Medical College Flower and Fifth Ave Hospitals Fifth Ave and 106th St New York	S	SC	Lab Sur	Arranged	Arranged		C Arranged	200
Combined surgical course including cadaver surgery and gynecology	New York Polyclinic Hospital 345 W 50th St New York	G	SC	Lab Pt Dem LC WR S Cad Lec, O AV	420	4/ 1/58	5/31/58	C 48 days	300
Thoracic Surgery	New York Polyclinic Hospital 345 W 50th St New York	G	SCI	Lab Pt Dem LC WR S Cad Sem Lec O AV	12	Arranged		I 6 sessions 2 hr thrice weekly Mondays Wednesdays Fridays	200
Vascular Surgery	New York Polyclinic Hospital 345 W 50th St New York	G	SCI	Lab Pt Dem LC WR S Cad Lec O AV	64	Arranged		I 8 sessions 8 hr weekly on Thursdays	200
663 A Recent Advances in Surgery	New York University Post Graduate Medical School 550 First Ave New York	S	SC	Lab Pt Dem Sem Lec Pan O AV	88	9/ 9/57	9/21/57	C 12 days	200
669 A Modern Concepts of the Etiology Pathologic Physiology and Therapy of Diseases with Surgical Implications	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Lec Pt Dem Pan AV Dem	111	9/12/57	6/12/58	I 37 sessions 3 hr weekly Thursdays	300
[illegible]1 A The Intervertebral Disc	New York University Post Graduate Medical School 550 First Ave New York	S (Neuro surgeons)	BC	Pt Dem Lec	14	10/ 1/57	10/ 2/57	C 2 days	50
[illegible]3 A Acute Neurological Problems of General Practice	New York University Post Graduate Medical School 550 First Ave New York	G	SC	Pt Dem LC Lec	35	10/14/57 4/28/58	10/18/57	C 5 days	125
601 A Review of General Surgery (for Specialists)	New York University Post-Graduate Medical School 550 First Ave New York	S	SC	Lab Pt Dem Sem Lec Pan O AV	176	10/21/57	11/16/57	C 21 days	300
610 A Pediatric Surgery	New York University Post Graduate Medical School 550 First Ave New York	G	BC	WR Sem Lec	21	1/ 6/58	1/ 8/58	C 3 days	60
A Diagnosis and Treatment of Peripheral Nerve Injuries	New York University Post Graduate Medical School 550 First Ave New York	G	BO	Pt Dem LO Lec	14	1/ 9/58	1/10/58	C 2 days	50
[illegible] A Basic Problems in Cancer Therapy (for Surgeons)	New York University Post Graduate Medical School 550 First Ave New York	S	SO	Lab Pt Dem LO Sem Lec Pan AV	88	1/20/58	2/ 1/58	C 12 days	200
[illegible]	New York University Post Graduate Medical School 550 First Ave New York	G	SO	Pt Dem Cad Lec	42	3/17/58	3/22/58	C 6 days	100

Minor Surgery & Office Gynecology	Rochester General Hospital Northside Division 1425 Portland Ave Rochester N Y	G	BC	Pt Dem Sur Lec O	12	4/23/58	4/24/58	C 2 days	10
General Surgery	University of Oregon Medical School 3181 S W Sam Jackson Park Rd Portland 1 Ore	C	SC	Pt Dem LC WR Sur Sem Lec Pan O AV	35	10/14/57	10/18/57	C 5 days	50
Lecture Course in General and Thoracic Surgery	University of Pennsylvania Graduate School of Medicine 237 Medical Lab Bldg Philadelphia	C	SCI	Lec	108	Unknown		I 108 sessions 1 hr weekly	100
Emergency Surgery—Acute Injuries	University of Tennessee College of Medicine 62 S Dunlap Memphis	G	BC	Pt Dem WR Lec Pan O AV	24	7/23/58	7/25/58	C 3 days	50
Surgery in Acute Trauma	Department of the Army Office of the Surgeon General Education and Training Division Washington 25 D C course at William Beaumont Army Hospital El Paso Tex	B	BC	Lec Pan AV	20	4/ 7/58	4/ 9/58	C 3 days	Nil
Surgery in Acute Trauma	Department of the Army Office of the Surgeon General Education and Training Division Washington 25 D C course at Army Medical Service School Brooke Army Medical Center Ft Sam Houston Tex	B	BC	Sem Lec Pan O AV	21	5/ 6/58	5/ 8/58	C 3 days	Nil
Surgery in Acute Trauma	Department of the Army Office of the Surgeon General Education and Training Division Washington 25 D C course at Madigan Army Hospital Tacoma Wash	B	BC	Sem Lec O AV	21	4/ 7/58	4/ 9/58	C 3 days	Nil
Postgraduate Course in Traumatic Surgery	Dr Robert C Parkin Assistant to the Dean University of Wisconsin Medical School 418 N Randall Ave Madison Wis	G	BC	Pt Dem IC Lec O	18	4/ 8/58	4/10/58	C 3 days	25

UROLOGY
(See also Anatomy)

James C Kimbrough Urological Seminar	Department of the Army Office of the Surgeon General Education and Training Division Washington 25 D C course at Walter Reed Army Medical Center Washington D C	B	BC	IC Lec	24	11/25/57	11/27/57	C 3 days	Nil
Ten Day Practical Course in Cystoscopy	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SC	Lab, Pt Dem IC WR Sur Lec O AV EPP	30	9/ 9/57 9/23/57 10/21/57 11/ 4/57 12/ 2/57 1/ 6/58 1/20/58 2/ 3/58 2/17/58 3/ 3/58 3/17/58 4/21/58 5/12/58 6/ 2/58 6/16/58 7/ 7/58 7/21/58 8/ 4/58	9/20/57	C 10 days	150
Urology	Cook County Graduate School of Medicine 707 S Wood St Chicago	G	SC	Lab Pt Dem IC WR Sur Lec O AV EPP	80	10/ 7/57 3/31/58	10/19/57	C 12 days	225
Urology	State University of Iowa College of Medicine University Hospitals Iowa City	G	BC	Pt Dem LC WR Lec Pan O AV	9 10	9/27/57	9/28/57	C 1½ days	20
Medical and Surgical Aspects of Urinary Tract Disease	University of Buffalo School of Medicine 3435 Main St, Buffalo	G	BC	Pt Dem Sem Lec Pan O AV	4	2/ 5/58	2/ 6/58	C 2 days	20
674 A Refresher Course in Basic Urology	New York University Post Graduate Medical School 550 First Ave New York	G	SC	Lab Pt Dem Cad Lec	35	1/13/58	1/17/58	C 5 days	75
671 A Advanced Course in Urology (for Specialists)	New York University Post Graduate Medical School 550 First Ave New York	S	SC	Lab Pt Dem LC Cad	70	5/12/58	5/23/58	C 10 days	175

Key will be found on page 1774

MEDICAL NEWS

ALABAMA

Cardiovascular Research Grants —Grants totaling $41,400 from the Alabama Heart Association to Alabama residents engaged in research of heart and circulatory diseases have been announced for the fiscal year beginning July 1 The grants were awarded to the following

Alfred L Siegel, B S, $5 000, for a study of the effect of insulin and epinephrine on myocardial metabolism and hemodynamics in the intact animal

Dr Lionel M Bargeron, $3,800 for studies of heart volume shifts during heart surgery

Dr Sterling Edwards $10,200, for investigation of the organization of techniques of intracardiac surgery and further development of synthetic arterial grafts

Dr Lloyd L Hefner $11,400 for a study of vibratory characteristics of the human body with reference to pressure pulse kinetocardiographic and ballistocardiographic genesis

All of the recipients are associated with the University of Alabama Medical Center, Birmingham In addition, a grant-in-aid of $11,000 has been presented to the Jefferson County Heart Chapter for a pilot study work evaluation unit

ARKANSAS

Society News —At its annual meeting the Arkansas Radiological Society elected the following officers president, Dr B A Rhinehart, Little Rock vice-president, Dr Edwin F Gray, Little Rock, and secretary-treasurer, Dr E A Mendelsohn, Fort Smith —— The Arkansas Dermatological Society has elected the following officers Dr Ray Fulmer, Little Rock president, Dr Ellis P Cope, Little Rock, vice-president, Dr Calvin Dillaha, Little Rock, secretary, and Dr Davis W Goldstein, Fort Smith, program chairman Plans were made to form a regional group of dermatologists within a radius of about 400 miles from Little Rock, which will hold yearly informal meetings

CALIFORNIA

Society News —At a recent meeting of the California Society of Plastic Surgeons Inc, the following officers were elected president, Dr Michael M Gurdin, Beverly Hills, vice-president Dr Gerald H Gray, Oakland, secretary-treasurer, Dr Benjamin F Edwards, Santa Monica and historian Dr Kathryn L Stephenson, Santa Barbara

Hartsough Memorial Established —A memorial to Dr Christopher William Hartsough, to be known as the C W Hartsough Mental Health Memorial Scholarship Fund, has been established by the San Diego Mental Health Association Dr Hartsough who died in October, 1956, was a psychiatrist for the San Diego Schools and a member of the board of directors of the Mental Health Association The scholarship fund will be used to provide funds for students in the mental health field For information write the San Diego Mental Health Association, 645 A Street, San Diego 1

DISTRICT OF COLUMBIA

New Hospital at American University —Ground will be broken this fall for a new 350 bed hospital and nursing school on the campus of American University One half of the seventh floor will be devoted to eye patients An outpatient department and fully equipped surgical facilities will be available There will be a residency training program in ophthalmology as well as in other clinical departments The hospital is being built at a cost of eight and one-half million dollars This money has been raised on a matching fund federal program with Hill–Burton money

Hospital Architectural Award —Providence Hospital, which in March won the *Modern Hospital* certificate of award as "modern hospital of the year," has also received the 19th biennial architectural award from the Washington Board of Trade Objective of the competition, which was held among 135 entries, is to "improve the design of buildings and attractiveness of the Washington metropolitan area" Eligibility was based on 'buildings which have intrinsic merit within themselves and add to the beautification of the area in which they are located' The present Providence Hospital was dedicated on March 25, 1956

ILLINOIS

Chicago

Personal —Dr Charles B Huggins, professor of urology and director of the Ben May Laboratory for Cancer Research at the University of Chicago, has been presented an honorary doctor of science degree by Torino (Italy) University and elected honorary president of the Italian Urological Association, in recognition of his research on the control of cancer by hormones

Hospital Residence Hall —Ground has been broken for the $1,100,000 residence hall in Mount Sinai Hospital The five story building, scheduled for completion in the fall of 1958, will be named Kling Hall in honor of Leopold Kling, past-president of the hospital and a member of the board of directors Mr Kling contributed $150,000 toward the cost of the new hall Other gifts assisting in the financing the structure include a grant of $181,000 from the Ford Foundation and $500,000 from the Jewish Federation of Chicago When completed the hall will provide accommodations for 170 interns, graduate nurses, and other hospital personnel

La Rabida Affiliates with Chicago University —The signing of the contract making La Rabida Jackson Park Sanitarium an affiliate of the University of Chi

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Physicians are invited to send to this department items of news of general interest, for example those relating to society activities new hospitals, education, and public health Programs should be received at least three weeks before the date of meeting cago's Medical School has been announced by Albert Pick Jr, sanitarium president, and Lawrence A Kimpton, chancellor of the university Under the agreement, the Medical School will appoint the sanitarium's medical director, supervise the care of patients, and conduct its research program, and the university's Medical School will direct its teaching program A nonsectarian institution supported by private charity, La Rabida is devoted to the care of children under 16 suffering from rheumatic fever and rheumatic heart disease Dr Hugh McCullouch is medical director of the sanitarium Other medical schools, Northwestern, University of Illinois, Chicago Medical, and Stritch School of Medicine of Loyola University, which have used La Rabida as a teaching laboratory will be invited to continue their programs there

IOWA

State Medical Election —The following officers of the Iowa State Medical Society have been elected president, Dr Fred Sternagel, West Des Moines, president-elect, Dr Rubin H Flocks, Iowa City, secretary, Dr Richard F Birge, Des Moines, and treasurer, Dr Nevin B Anderson, Des Moines

Dr Kennedy Honored —Dr Elizabeth Smith Kennedy, of Oelwein, has been presented with an award as "outstanding general practitioner of 1957, by the Iowa State Medical Society Dr Kennedy is the first woman to receive the award, made annually by the society since 1951 Her two daughters, Dr Elizabeth Kennedy Knuth, of Long Island, N Y, and Dr Ruth Kennedy Nayfield, of Eagle Lake, Fla, are physicians Dr Kennedy has served as city health officer and city physician in Oelwein She served as president of the Fayette County Medical Society from 1938 to 1942, and in 1955 she was honored by that group for "her 55 years as a community doctor'

KANSAS

Society News —At the annual meeting of the Kansas Society of Anesthesiologists, the following officers were reelected to serve for the year 1957-1958 president, Dr Dale U Loyd, Wichita, vice-president, Dr Harold F Spencer, Emporia, secretary, Dr William F Powers, Wichita, and treasurer, Dr Joseph E Gootee, Topeka

MASSACHUSETTS

Dr Rackemann Honored —The Netherlands Society of Allergy has instituted the Storm van Leeuwen medal to be presented every five years Dr Francis M Rackemann has been selected to be an honorary member of the society, to give a paper about his work, and to receive the Storm van Leeuwen medal This paper will be presented at the spring meeting of the society, May 14, 1958

MICHIGAN

Personal —Dr Robert A McClearv, Ann Arbor, Mich, has been awarded the only senior postdoctoral fellowship in physiological psychology for the academic year 1957-1958 supported by the Carnegie Corporation of New York City

Society News —Officers of the Michigan Proctological Society include, Dr Joseph W Becker, Detroit, president, Dr Donald Pearson, Battle Creek, president-elect, Dr Guy DeBoer, Grand Rapids, secretary, and Dr Martin Sharp, Saginaw, treasurer

MISSISSIPPI

Personal —Dr Oscar E Hubbard, formerly chief, Mental Health Section, Alaska Department of Health, has been appointed a professor of psychiatry at the University of Mississippi Medical Center, Jackson Dr Hubbard has headed the mental health program in Alaska since July 1, 1955 Before that date he was an associate professor of psychiatry at Baylor University and chief of psychiatric services at the Veterans Administration Hospital in Houston, Texas —Dr Thomas J Brooks Jr, chairman, department of medicine, has been appointed an assistant dean at the University of Mississippi Medical Center, Jackson Dr Brooks will *handle student affairs in addition to his duties as* department chairman

MONTANA

State Medical Association Meeting —The 79th annual meeting of the Montana Medical Association will be held at the Lodge on the campus of Montana State University, Missoula, Sept 19-21, under the presidency of Dr Edward S Murphy The guest clinicians will include Drs John A Anderson, professor of pediatrics, University of Minnesota Medical School, Minneapolis, C Donald Creevv, professor of surgery (urology), University of Minnesota Medical School, Dwight C Ensign, Detroit, Lyle A French, associate professor of surgery (neurosurgery), University of Minnesota Medical School, Lester T Jones, clinical professor of otology, rhinology, and laryngology, University of Oregon Medical School, Portland, Charles W Mayo, professor of surgery, University of Minnesota Graduate School, Rochester, Ralph A Reis, professor of obstetrics and gynecology, Northwestern University Medical School, Chicago, Albert D Reudemann Sr, professor of ophthalmology, Wayne University College of Medicine, Detroit, and Grier F Starr, consultant in surgical pathology, Mayo Foundation, Rochester, Minn On Sept 19, the association will hold its annual reception and banquet at the Florence Hotel Robert Sullivan, dean of the Law School, Montana State University, will be the principal speaker Certificates of distinction will be awarded to Dr Charles R Thornton, Ronan, Dr Royal H Dyer, Sheridan, and Dr Sadie B Lindeberg, Miles City, all of whom have completed 50 years in the active practice of medicine For information write the Montana Medical Association, P O Box 1692, Billings, Mont

NEW MEXICO

Dr Rosenblum Goes to North Carolina —Dr Bernard Rosenblum, formerly director, preventative medicine division, State Health Department, Santa Fe, has assumed new duties with the North Carolina State Board of Health in Raleigh as director of the venereal disease division He will also serve as associate professor of public health administration in the School of Hygiene

Miller, Youngstown The next annual meeting will be held at the Wade Park Manor Hotel in Cleveland, May 16-18, 1958

Psychiatric Research Grants —Receipt of seven U S Public Health Service research grants totaling more than $400,000 has been announced by Dr Ralph Patterson, medical director of the Columbus Psychiatric Institute and Hospital, Ohio State University Health Center Administered through the National Institutes of Health, Bethesda, Md , the grants will support studies to be carried out by the research division of the psychiatric institute, directed by Dr Benjamin Pasamanick The projects, of one to five years' duration, are concerned with prenatal precursors of neuropsychiatric disorder, biosynthesis of neuraminic acid, aging drug effects on normal individuals, development of primate behavior, infantile experience, effects of brain damage, and vector and topographic electroencephalography

VERMONT

State Medical Society Meeting —The annual meeting of the Vermont State Medical Society will be held jointly with the New Hampshire Medical Society at the Balsams, Dixville Notch, N H, Sept 14-17 Out-of-state speakers include Dr Richard H Overholt, Boston, Dr Charles G Child, Cornell University Medical College, New York, Dr Harold Wolff, University of Oklahoma, Oklahoma City, Dr William Meroney, Boston, Dr Philip R McDonald, Wills Eye Hospital, Philadelphia, and Dr Georges Perera, Columbia University, College of Physicians and Surgeons, New York City On Sept 16 a new type of colloquium will be devoted to the problems of the impact of man on man in respect to medicine, health, and disease On Sept 17, specialty meetings will be held in medicine, surgery, obstetrics-gynecology, ophthalmology, and radiology Entertainment includes an annual banquet Sept 20, with Dr William A Pratt as toastmaster For information write the Vermont State Medical Society, 128 Merchants Row, Rutland, Vt

WEST VIRGINIA

State Medical Association Meeting —The 90th annual meeting of the West Virginia State Medical Association will be held at the Greenbrier, White Sulphur Springs, Aug 22-24 An address will be presented by Dr Everett L Gage, of Blue Field, president of the association Three symposiums are planned Pediatric Care, moderated by Dr William A Thornhill Jr , Diseases of the Liver, Biliary System, and Pancreas, moderated by Dr Hampton St Clair, Obstetrics and Gynecology, moderated by Dr Seigle W Parks Panel discussions including question and answer periods will follow the formal presentations at the general sessions Dr David B Allman, president of the American Medical Association is guest speaker and will address the house of delegates Aug 24 Technical and scientific exhibits are scheduled Entertainment includes a reception Aug 24 Trap and skeet shooting tournaments and golf and tennis tournaments are planned For information write Mr Charles Lively, Executive Secretary, West Virginia State Medical Association, 401 Atlas Building, Charleston, W Va

GENERAL

Poliomyelitis in Vaccinated Persons —The Poliomyelitis Surveillance Unit of the Communicable Disease Center reports that, through June 19, 1957, only 42 persons among an estimated 20 2 million who received three injections were reported to have contracted paralytic poliomyelitis in 1956 and 1957 after receiving three injections of the polio vaccine This number includes two fatalities one case not fully identified as poliomyelitis which occurred in Indiana in 1956 and one confirmed case which occurred in New Mexico in January, 1957

Prevalence of Poliomyelitis —According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States, its territories and possessions in the weeks ended as indicated

Area	July 20 1957 Paralytic Type	July 20 1957 Total 1957	July 21 1956 Total
New England States			
Maine		1	
New Hampshire			
Vermont			
Massachusetts	1	2	2
Rhode Island			
Connecticut		3	1
Middle Atlantic States			
New York	3	7	20
New Jersey			4
Pennsylvania		3	5
East North Central States			
Ohio	1	10	17
Indiana	1	4	10
Illinois	6	13	80
Michigan	5	10	10
Wisconsin		15	11
West North Central States			
Minnesota		2	1
Iowa	1	2	17
Missouri		6	19
North Dakota			
South Dakota			
Nebraska	1	4	8
Kansas	1	4	7
South Atlantic States			
Delaware			
Maryland			4
District of Columbia			
Virginia		2	4
West Virginia		2	6
North Carolina	1	17	7
South Carolina		6	6
Georgia	1	2	8
Florida		2	14
East South Central States			
Kentucky	3	8	7
Tennessee	2	7	8
Alabama		2	2
Mississippi	2	8	7
West South Central States			
Arkansas		4	8
Louisiana	3	9	60
Oklahoma	1	14	6
Texas	9	33	61
Mountain States			
Montana		1	3
Idaho	1	1	5
Wyoming			1
Colorado			2
New Mexico		4	1
Arizona		2	7
Utah			6
Nevada			
Pacific States			
Washington			1
Oregon	1	5	5
California	6	37	88
Territories and Possessions			
Alaska			
Hawaii			3
Puerto Rico	2	2	
Total	52	254	532

and Public Health at the University of North Carolina, Chapel Hill, and as associate professor of medicine at Duke University, Durham Dr Rosenblum, who has been with the U S Public Health Service since 1950, was recently promoted to the rank of senior surgeon Before coming to New Mexico in 1955, he served in Tallahassee and Jacksonville, Fla , Baltimore, Atlanta, Ga , and was on the staff of the Chicago Health Department for two years

NEW YORK

Grant for Retardation Study—A four-year research project that will try to determine whether instruction in primary school classes is better than home tutoring for the development of mentally retarded children will get under way soon at Teachers College, Columbia University A grant of $660,500 from the United States Office of Education will be used to finance the program President Hollis L Caswell of Teachers College said that the research would test the hypothesis that group activities in school were better for the later development of mentally retarded children than staying at home The study will be conducted by the college department of special education, which trains teachers of the handicapped, and will be directed by Maurice H Fouracre, department head The project will initially involve 60, and possibly 90, 4-year-old children

Hospital Director Named—Dr Robert C Hunt has been appointed director of Hudson River State Hospital Currently, Dr Hunt is director of Erie County Community Mental Health services and until April of this year was an assistant commissioner of the State Department of Mental Hygiene He is also associate clinical professor of psychiatry, University of Buffalo School of Medicine Dr Hunt succeeds the late Dr Oswald A Kilpatrick, who died in March As assistant commissioner for nearly five years, he headed the department's division of community mental health services since its inauguration in 1954 Dr Hunt became a fellow in psychiatry at the Institute of the Pennsylvania Hospital, Philadelphia, in 1934 and was named to the staff of Rochester State Hospital in 1935 He was also a member of the faculty of the University of Rochester School of Medicine and Dentistry Named director of St Lawrence State Hospital in March, 1950, Dr Hunt held that position until his appointment as assistant commissioner of the department in 1952

New York City

Personal—Dr Arthur A Knapp addressed French Ophthalmologists at La Clinique Nationale Des Quinze-Vingts, Paris, France, June 26, on "Indications for Eye Surgery, the Physiologic Bases" Also, he was invited to give a paper before the Congress of the International Society for the Relief of Crippled Children on July 29 ——Martynas Ycas, Ph D , assistant professor of microbiology, State University College of Medicine, Syracuse, left July 29 for a 10-week visit to Nigeria, Africa Purpose of his visit is to collect silkworms which produce a particularly simple type of silk, from the chemical point of view His studies of silk secretion are expected to help understand the chemistry of protein formation Dr Ycas, who is making the African trip under a grant from the Lalor Foundation, Wilmington, Del , will spend a portion of his time lecturing at University College, Ibadan, Nigeria, on protein and nucleic acid syntheses

New Graduate School at Einstein Medical College—A new graduate school for advanced study and research in the medical sciences will open this fall at the Albert Einstein College of Medicine Establishment of the school has been made possible through an initial gift of $750,000 by Samuel H Golding and his son, Herrold R Golding, of New York The new school will serve as a memorial to the late Samuel H Golding's wife, and will be known as the Sue Golding Graduate Division of Medical Sciences The Golding gift is part of the $25,000,000 development fund program of the College of Medicine, headed by Nathaniel L Goldstein, former attorney general of the State of New York The Sue Golding Graduate Division of Medical Sciences will provide advanced study and research training in the medical sciences leading to the Ph D degree Students to qualify must hold a bachelor's degree or its equivalent from a college or university of recognized standing The program of the graduate division will be closely linked with the pilot training and research program in the study of the nervous system and the behavioral sciences which the College of Medicine is undertaking in cooperation with the National Institute of Mental Health, U S Public Health Service Under this program, subsidies will be available to assist young people to receive training and to enter this field of research The appointment of an executive committee to administer the graduate school includes the following department heads Dr Alfred A Angrist, pathology, Dr Alfred Gilman, pharmacology, Dr Edward James Hehre, microbiology and immunology, and Dr Abraham White, biochemistry The new graduate school will be housed in the 10-story Science Building of the college Basic research will be coordinated with clinical investigation in the 1400-bed Bronx Municipal Hospital Center, which is adjacent to the Medical College and serves as its clinical teaching and research adjunct

NORTH CAROLINA

Anesthesia Research Grant—Duke University medical researchers, working under a grant of $133,500, have begun studying the possibility of a link between anesthesia given at childbirth and afflictions such as cerebral palsy, it has been reported Roland F Becker, Ph D , of the Duke Medical School's anatomy department is principal investigator for the project The three-year grant came from the National Institutes of Health, U S Public Health Service

OHIO

Society News—At the annual meeting of the Ohio State Radiological Society the following officers were elected for the year 1957-1958 president, Dr Paul Jones, Zanesville, vice-president and president-elect, Dr John R Hannan, Cleveland, secretary, Dr Francis C Curtzwiler, Toledo, and treasurer, Dr Frances A

Miller, Youngstown The next annual meeting will be held at the Wade Park Manor Hotel in Cleveland, May 16-18, 1958

Psychiatric Research Grants —Receipt of seven U S Public Health Service research grants totaling more than $400,000 has been announced by Dr Ralph Patterson, medical director of the Columbus Psychiatric Institute and Hospital, Ohio State University Health Center Administered through the National Institutes of Health, Bethesda, Md , the grants will support studies to be carried out by the research division of the psychiatric institute, directed by Dr Benjamin Pasamanick The projects, of one to five years' duration, are concerned with prenatal precursors of neuropsychiatric disorder, biosynthesis of neuraminic acid, aging drug effects on normal individuals, development of primate behavior, infantile experience, effects of brain damage, and vector and topographic electroencephalography

VERMONT

State Medical Society Meeting —The annual meeting of the Vermont State Medical Society will be held jointly with the New Hampshire Medical Society at the Balsams, Dixville Notch, N H , Sept 14-17 Out-of-state speakers include Dr Richard H Overholt, Boston, Dr Charles G Child, Cornell University Medical College, New York, Dr Harold Wolff, University of Oklahoma, Oklahoma City, Dr William Meroney, Boston, Dr Philip R McDonald, Wills Eye Hospital, Philadelphia, and Dr Georges Perera, Columbia University, College of Physicians and Surgeons, New York City On Sept 16 a new type of colloquium will be devoted to the problems of the impact of man on man in respect to medicine, health, and disease On Sept 17, specialty meetings will be held in medicine, surgery, obstetrics-gynecology, ophthalmology, and radiology Entertainment includes an annual banquet Sept 20, with Dr William A Pratt as toastmaster For information write the Vermont State Medical Society, 128 Merchants Row, Rutland, Vt

WEST VIRGINIA

State Medical Association Meeting —The 90th annual meeting of the West Virginia State Medical Association will be held at the Greenbrier, White Sulphur Springs, Aug 22-24 An address will be presented by Dr Everett L Gage, of Blue Field, president of the association Three symposiums are planned Pediatric Care, moderated by Dr William A Thornhill Jr , Diseases of the Liver, Biliary System, and Pancreas, moderated by Dr Hampton St Clair, Obstetrics and Gynecology, moderated by Dr Seigle W Parks Panel discussions including question and answer periods will follow the formal presentations at the general sessions Dr David B Allman, president of the American Medical Association is guest speaker and will address the house of delegates Aug 24 Technical and scientific exhibits are scheduled Entertainment includes a reception Aug 24 Trap and skeet shooting tournaments and golf and tennis tournaments are planned For information write Mr Charles Lively, Executive Secretary, West Virginia State Medical Association, 401 Atlas Building, Charleston, W Va

GENERAL

Poliomyelitis in Vaccinated Persons —The Poliomyelitis Surveillance Unit of the Communicable Disease Center reports that, through June 19, 1957, only 42 persons among an estimated 20 2 million who received three injections were reported to have contracted paralytic poliomyelitis in 1956 and 1957 after receiving three injections of the polio vaccine This number includes two fatalities one case not fully identified as poliomyelitis which occurred in Indiana in 1956 and one confirmed case which occurred in New Mexico in January, 1957

Prevalence of Poliomyelitis —According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States, its territories and possessions in the weeks ended as indicated

Area	July 20 1957		July 21 1956
	Paralytic Type	Total 1957	Total
New England States			
Maine		1	
New Hampshire			
Vermont			
Massachusetts	1	2	2
Rhode Island			
Connecticut		3	1
Middle Atlantic States			
New York	3	7	20
New Jersey			4
Pennsylvania		3	5
East North Central States			
Ohio	1	10	17
Indiana	1	4	10
Illinois	6	13	80
Michigan	5	10	10
Wisconsin		15	11
West North Central States			
Minnesota		2	1
Iowa	1	2	17
Missouri		6	19
North Dakota			
South Dakota			
Nebraska	1	4	3
Kansas	1	4	7
South Atlantic States			
Delaware			
Maryland			4
District of Columbia			
Virginia		2	4
West Virginia		2	6
North Carolina	1	17	7
South Carolina		6	6
Georgia	1	2	8
Florida		2	14
East South Central States			
Kentucky	3	8	7
Tennessee	2	7	3
Alabama		2	2
Mississippi	2	8	7
West South Central States			
Arkansas		4	8
Louisiana	3	9	60
Oklahoma	1	14	6
Texas	9	33	61
Mountain States			
Montana		1	3
Idaho	1	1	5
Wyoming			1
Colorado			2
New Mexico		4	1
Arizona		2	7
Utah			6
Nevada			
Pacific States			
Washington			1
Oregon	1	5	5
California	6	37	88
Territories and Possessions			
Alaska			
Hawaii			3
Puerto Rico	2	2	
Total	[illegible]	[illegible]	[illegible]

Sterility Research Grant —The Ortho and Carl G Hartman grants-in-aid of the American Society for the Study of Sterility, each of $500, are available for 1958 Applications should be sent to the chairman, Research Correlating Committee, American Society for the Study of Sterility, Dr S Leon Israel, 2116 Spruce St, Philadelphia, by Nov 30 No application will be considered by the committee unless it is accompanied by three copies of a brief outline of the research project for which the grant-in-aid is being sought

Medical Writing Contest Winners —Dr Wilfred Dorfman, Brooklyn, member of the attending staff of a number of Brooklyn hospitals, has been declared the winner of the 1957 Mississippi Valley Medical Society Essay Contest for his paper, "The Challenge of New Drugs" Dr Dorfman will present his paper at the 22nd annual meeting of the Mississippi Valley Medical Society to be held at the Hotel Sheraton–Jefferson, St Louis, Sept 25-27 He will receive a gold medal, a certificate, and a cash award at the society banquet, Sept 26 Runner-up in the contest was Dr Ethan A Brown, Boston, for his paper, 'The Pulmonary Cripple,' and the third place winner was Dr Earl J Farrell, Newport, Ky, for his paper, 'Antenatal Pediatrics in General Practice" Drs Brown and Farrell will each receive a certificate of award The winning papers will appear in the January, 1958, issue of the *Mississippi Valley Medical Journal*

Mississippi Valley Society Meeting —The 22nd annual meeting of the Mississippi Valley Medical Society will be held at the Sheraton–Jefferson Hotel, St Louis, Sept 25-27 More than 40 clinical teachers from medical schools will conduct the program which will include six panel discussions obstetrics, burns, the acute surgical abdomen, peptic ulcer, chronic diseases in infancy and childhood, and headache The speakers include Drs Edgar S Britnall, Rubin H Flocks, and Sidney E Ziffren, of the State University of Iowa, Iowa City, Richard B Cattell and John R Graham, of Boston, Russell L Cecil, Lewis J Doshay, and Arnold P Friedman, of New York, Wilfred Dorfman, of Brooklyn, Arkell M Vaughn, Frank H Fowler, and Austin E Smith, of Chicago, James C Cain and Jacob A Bargen, of the Mayo Clinic, Edgar H Little, of New Orleans, Arnold S Jackson and John L Sims, of Madison, Wis, and David W Robinson and Claude J Hunt, of Kansas City There will be technical and scientific exhibits A special ladies' program is planned For information write Dr Harold Swanberg, Secretary, 209-224 W C U Building, Quincy, Ill

Ultrasonics in Medicine —The International Congress of Ultrasonics in Medicine, supported by the American Institute of Ultrasonics in Medicine, will be held at the Statler Hotel, Los Angeles, Sept 6-7 The Disraeli Kobak Memorial Lecture, "Frailty of Man in Flight" will be presented by Capt Ashton Graybiel, MC, U S Navy, director of research School of Aviation Medicine, Pensacola, Florida The presidential address will be given by Dr Jerome Gersten, Denver The following panel discussions will be presented physical mechanism of the action of ultrasound on tissue, ultrasonics in clinical medicine, use and effects of ultrasonics in dentistry A roundtable discussion and demonstration of ultrasonics in medicine to be presented Sept 8 will be moderated by Dr John H Aldes, Los Angeles Foreign speakers include P Greguss, Ph D, Budapest, Hungary, Dr Desider Kamocsay, Budapest, Hungary, Dr J Patzold, Erlangen, Germany, Dr Siegfried Koeppen, Wolfsburg, Germany, J Jankowiak, Ph D, Poznan, Poland, Dr Carlos Bustamente-Ruiz, Lima, Peru, Dr M Oka, Osaka, Japan, and Dr Eugene Weissenberg, San Juan, Puerto Rico For information write Dr John H Aldes, Secretary, American Institute of Ultrasonics in Medicine, Cedars of Lebanon Hospital, 4833 Fountain Avenue, Los Angeles 29, Calif

Physical Medicine Meeting in Los Angeles —The 35th annual scientific and clinical session of the American Congress of Physical Medicine and Rehabilitation will be held in the Statler Hotel, Los Angeles, Sept 8-13 An address will be presented by Dr Murray B Ferderber, president, American Academy of Physical Medicine and Rehabilitation Special scientific film sessions will include the following colored films Progressive Ambulation Training, Gait Studies of the Severely Handicapped Hemiplegic Patient, Home Care—An Approach to the Treatment of Chronic Disease, Use of Resistive Training in Ambulation Training, and Motion Patterns Used in Neuromuscular Re Education Papers to be presented by foreign authors include the following

The Problem of Paralytic Dislocation of the Hip in the Rehabilitation of Children with Poliomyelitic Sequelae, Dr Alfonso Tohen Zamudio, Dr Luis Rojas, Dr Luis Ibarra, Hospital Infantil de Mexico, Mexico City

Mexican Efforts in the Field of Rehabilitation of its Disabled, Dr Jose Ibarra, Dr David Amato, Mexico City

The seventh John Stanley Coulter Memorial Lecture will be given by Fred B Moor, medical director, School of Physical Therapy, College of Medical Evangelists, Los Angeles Scientific and technical exhibits will be on display For information write the American Academy of Physical Medicine and Rehabilitation, 30 N Michigan Ave, Chicago 2

Cardiovascular Research Fellowships —Applications by research investigators for support of projects to be developed during the fiscal year beginning July 1, 1958, are being accepted by the American Heart Association The deadline for research fellowship applications and established investigatorships is Sept 15, applications for grants-in-aid must be made by Nov 1 Funds for association-supported research in the cardiovascular field are provided by public contributions to the Heart Fund At least half of all funds received by the association's National Office are allocated to research Applications may be made for awards in the following categories

Established Investigatorships Awarded for periods of up to five years, subject to annual review, in amounts from $6,000 to $8,000 yearly, to scientists who have developed in their research careers to the point where they are independent investigators

Research Fellowships Awarded to young men and women with doctoral degrees for periods of one or two years to enable them to train as investigators under experienced supervision Annual stipends range from $3,800 to $5,700

Advanced Research Fellowships Are to be awarded for the first time next year for periods of one or two years to postdoctoral applicants who have had some research training and experience but who are not yet clearly qualified to conduct their own independent research They will be permitted to spend up to 25% of their time in professional and scientific activities not strictly of research nature, providing that these will contribute to their professional development and do not involve services for a fee These new stipends range from $4,600 to $6 500 annually

Grants-in-Aid Made to experienced investigators to provide support for specified projects

Information may be obtained from the Medical Director, American Heart Association, 44 East 23rd St, New York 10, N Y

FOREIGN

International Medical Press Meeting.—The third congress of the International Union of the Medical Press will be held in London, Sept 13-15 under the sponsorship of the Union Internationale de la Presse Médicale and the Press Medical Association Meetings will be held in the British Medical Association House Topics include the press and medicine, the editor and the author, illustrations in medical journals, standardization of format and bibliographical references, abstract or digest?, editorial responsibility for medical advertisements, the place of the specialist journal in medical literature, multilingual summaries of medical articles Speakers from Austria, France, Scotland, England, Denmark, Norway, Germany, and the United States will make presentations A banquet will be held Sept 13 For information write the Organizing Secretary, London Congress of the Union Internationale de la Presse Médicale, % British Medical Journal, B M A House, Tavistock Square, London, W C 1, England

World Medical Association Meeting.—The 11th general assembly of the World Medical Association will convene in Istanbul, Turkey, Sept 29-Oct 5, in the Conference Hall, Faculty of Science, University of Istanbul The theme of the assembly, celebrating its first decade of activity, will be "Solidarity—The Key to Medical Advancement Program topics will include Utilization of the Hospital in Providing Medical Care, Protection for the Civilian Medical Team in Times of Armed Conflict, and the Interdependence of the Medical and Pharmaceutical Professions There will be a medical editors meeting at which The Role of the Medical and Lay Press in Health Education of the Public" and "Integration of Medical Journals to Reduce the Number and Improve Content" will be discussed The Scientific Session will include "Advancements in Medical Practice in Turkey' The World Medical Association, an international organization of national medical associations, includes 53 national medical associations of the free world, representing more than 700,000 doctors For information write the World Medical Association, 10 Columbus Circle, New York 19, N Y

CORRECTIONS

Brig Gen Eugen G Reinartz.—The item in THE JOURNAL, Aug 3 issue, page 1600, entitled Three Officers Receive Awards erroneously stated that Brig Gen Eugen G Reinartz was a past-president of the American Medical Association, whereas, the item should have read that Brig Gen Reinartz was a past-president of the Aero Medical Association

Intravenous Urography.—In the Query and Minor Note entitled 'Intravenous Urography in the July 20, 1957, issue of THE JOURNAL, page 1417, the 16th line of the last paragraph of this query should have read 100 mg of hydrocortisone" instead of '100 Gm of hydrocortisone"

EXAMINATIONS AND LICENSURE

BOARDS OF MEDICAL EXAMINERS

CALIFORNIA *Written Examination* Los Angeles, Aug 19-22 Sacramento, Oct 21-24 *Oral Examination* Los Angeles, August 17 San Francisco, Nov 16 *Oral and Clinical for Foreign Graduates* Los Angeles, Aug 18, San Francisco Nov 17 Sec, Dr Louis E Jones 1020 N St, Sacramento 14

DISTRICT OF COLUMBIA * *Reciprocity* Washington, Sept 9 *Examination* Washington Nov 12-13 Deputy Director Mr Paul Foley 1740 Massachusetts Ave, N W, Washington, D C

GEORGIA *Examination* Atlanta, Oct 8 9 *Reciprocity* Atlanta, Oct 10 Sec Mr Cecil L Clifton 111 State Capitol Atlanta 3

MINNESOTA * *Examination and Reciprocity* Minneapolis Oct 15-17 Sec, Dr F H Magney, 230 Lowry Medical Arts Bldg St Paul 2

MONTANA *Examination and Reciprocity* Helena, Oct 1-2 Sec Dr Thomas L Hawkins 555 Fuller Ave Helena

NEW HAMPSHIRE *Examination and Reciprocity* Concord Sept 11-13 Sec, Dr John S Wheeler 107 State House Concord

OKLAHOMA *Examination* Oklahoma City Dec 14-15 Sec, Dr E L Lester, 813 Braniff Bldg, Oklahoma City

VIRGINIA *Reciprocity* Richmond Dec 4 *Examination* Richmond, Dec 5-7 Address Office of the Secretary, 631 First St, S W Roanoke

ALASKA * On application in Anchorage and Juneau Sec Dr W M Whitehead 172 South Franklin St Juneau

GUAM *Subject to Call* Act Sec Dr S F Provencher, Agana

PUERTO RICO *Examination* San Juan September 4 Sec Mr Joaquin Mercado Cruz Box 9156 Santurce

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ARKANSAS *Examination* Little Rock Oct 7-8 Sec, Mr S C Dellinger Zoology Department University of Arkansas Fayetteville

COLORADO *Examination and Reciprocity* Denver Sept 4 5 Sec Dr Esther B Starks 1459 Ogden St, Denver 18

DISTRICT OF COLUMBIA *Examination* Washington Oct 21-22 Deputy Director Mr Paul Foley 1740 Massachusetts Ave N W, Washington, D C

MICHIGAN *Reciprocity* Ann Arbor Sept 7 *Examination* Ann Arbor and Detroit Oct 11-12 Sec Mrs Anne Baker 116 Stevens T Mason Bldg West Michigan Ave Lansing

NEVADA *Examination* Reno, Sept 3 Sec, Dr Donald G Cooney, Box 9005, University of Nevada Reno

OKLAHOMA *Examination* Oklahoma City, Sept 27-28 Sec Dr E F Lester 813 Braniff Bldg Oklahoma City

RHODE ISLAND *Examination* Providence, Aug 28 Administrator of Professional Regulation Mr Thomas B Casey, 366 State Office Bldg Providence

TEXAS *Examination* Austin, October *Waiver and Reciprocity* Meeting 1st and 15th of each month Sec, Brother Raphael Wilson 407 Perry Brooks Bldg, Austin

WISCONSIN *Examination* Madison Sept 20 and Milwaukee Dec 7 Sec, Mr William H Barber 621 Ransom St, Ripon

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*Basic Science Certificate required

DEATHS

Metcalfe, Raymond Franklin, Brigadier General, U S Army, retired, born in Salamanca, N Y , in 1877, University of Buffalo School of Medicine, 1900, appointed an assistant surgeon in the Army in 1901, served in the Philippines where he assisted in stamping out a cholera epidemic on Leyte, during World War I served in France in the Oise–Aisne and Meuse–Argonne operations, for service in connection with suppression of influenza epidemic in the American Expeditionary Force was awarded the Distinguished Service Medal, from 1920 to 1927 was chief of surgical service at the Station Hospital, Fort Sam Houston, Texas and later commanded Tripler General Hospital, Honolulu, T H chief of surgical service at Walter Reed Army Hospital, Washington D C , 1935-1936, named commanding officer of Walter Reed Army Medical Center Washington, D C , serving in that capacity from 1939 to 1941 when he retired from active duty shortly after Pearl Harbor, was recalled and during World War II commanded all Army medical facilities on the West Coast, retiring again in 1946, service member and in 1926 member of the House of Delegates of the American Medical Association fellow of the American College of Surgeons, died in the Army and Navy Hospital, Hot Springs, Ark , May 8 aged 79 of acute peritonitis, peritoneal abscesses, myocardial infarction, and cerebral arteriosclerosis

Whitmore, Eugene Randolph ⚕ Colonel, U S Army, retired, Washington, D C , born in Lancaster, Wis , June 18, 1874, College of Physicians and Surgeons of Chicago School of Medicine of the University of Illinois, 1899 appointed assistant surgeon in 1901, with the rank of first lieutenant in the U S Army, served as professor of pathology at the Army Medical School, as professor of tropical medicine and curator at the Army Medical Museum, and as pathologist at the Bureau of Science, Manila, P I , retired from active military duty in 1920, veteran of World War I, professor of pathology emeritus Georgetown University School of Medicine at one time professor of bacteriology and preventive medicine at George Washington University Medical School, formerly on the faculty of his alma mater, specialist certified by the American Board of Pathology, served as secretary of the American Association for the Study of Neoplastic Diseases, member of the American Association of Pathologists and Bacteriologists, College of American Pathologists, and the American Society of Clinical Pathologists, fellow of the American College of Physicians, headed the division of tropical diseases at Doctors Hospital, directed the pathology laboratories at Casualty Hospital, where he was senior pathologist and consultant, died in the Walter Reed Army Hospital May 4, aged 82

Cadwalader, William Biddle, Philadelphia, born July 9, 1876, University of Pennsylvania Department of Medicine, Philadelphia, 1902, emeritus professor of neurology at his alma mater, an associate member of the American Medical Association, past president of the American Neurological Association and the Philadelphia Neurological Society, for many years president and at one time vice-president and secretary of the Philadelphia Zoological Society, veteran of the Spanish–American War, served in France during World War I, author of The Diseases of the Spinal Cord received an honorary degree of doctor of science from the University of Pennsylvania in 1952, long associated with the Presbyterian Hospital, University Hospital and the Bryn Mawr (Pa) Hospital, where he died May 31, aged 80

Moruzi, Alexandre Demitrio, Kansas City, Mo , born in Bucharest, Rumania, Feb 18, 1900, Universite de Paris Faculte de Médecine, France, 1929, chief of the Rumanian Red Cross motorized hospital during World War II, served as head surgeon in the "Cantate" Hospital of Iasi, Rumania, and as chief of a surgical department in the Hospital "Los Andes," Merida, Venezuela, formerly assistant professor of surgery in Bucharest, Rumania, and neurology at Iasi, Rumania, at one time professor of surgery at the School of Medicine in Iasi, Rumania, and professor of surgery at the School of Medicine in Merida, Venezuela, an assistant surgeon, Missouri Pacific Hospital Association, associated with St Mary s Hospital, where he served an internship, and where he died May 3, aged 57

Witherspoon, Thomas Casey, Los Angeles, born in Natchez, Miss , May 25, 1868, Missouri Medical College, St Louis, 1889, member of the Western Surgical Association, fellow and a founder of the American College of Surgeons, veteran of World War I, served on the faculty of Marion Sims College of Medicine and St Louis Medical College in St Louis, where he was on the staff of the Missouri Baptist Hospital, past president of the Montana Medical Association, at one time practiced in Butte, Mont , where he was on the staff of the Murray Hospital, an early member of the Chamber of Commerce, and a charter member and first president of the Butte Rotary Club, died May 15 aged 88

Mogabgab, Anees, New Orleans born in Mt Lebanon Syria, Sept 5, 1893, Tulane University of Louisiana School of Medicine, New Orleans, 1919, service member of the American Medical Association, an associate American College of Physicians, lecturer in medicine at his alma mater, veteran of World War II, National Guardsman, on March 19, 1952, was awarded the Louisiana longevity medal for 25 years service as a guardsman, on Feb 14, 1954, was presented the Louisiana Distinguished Service medal on the 116th anniversary of the Washington Artillery, manager of the Veterans Administration Hospital, where he died April 18, aged 63, of terminal bronchopneumonia and cancer of the pancreas

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⚕ Indicates Member of the American Medical Association

Lewi, Maurice J ⊕ New York City, born in Albany Dec 1, 1857, Albany Medical College, 1877, at one time on the faculty of his alma mater and professor of medical jurisprudence at the Albany Law School, served as chairman of the committee on medical legislation of the Medical Society of the State of New York, as president of the Medical Society of the County of Albany, and as secretary of the New York State Board of Medical Examiners, president of the first Institute of Podiatry, now known as the New York College of Podiatry, and Foot Clinics, author of several books on chiropody and podiatry, died May 27 aged 99

Murphy, Robert Gordon ⊕ Providence, R I, born in Providence Feb 26, 1907, McGill University Faculty of Medicine, Montreal, Que, Canada, 1933, specialist certified by the American Board of Internal Medicine, fellow of the American College of Physicians, treasurer of the Providence Medical Association, veteran of World War II, interned at the Charles V Chapin Hospital, associated with the Rhode Island Hospital, where he served an internship and residency, on the staffs of the Roger Williams General, Providence Lying-In and St Joseph's hospitals, attending physician at the Veterans Administration Hospital where he died May 6, aged 50

Greenebaum, Regina Stolz, Pittsburgh, born in Chicago March 17, 1904, Rush Medical College, Chicago, 1933, specialist certified by the American Board of Internal Medicine, member of the American College of Chest Physicians, service member of the American Medical Association, member of the faculty of the University of Pittsburgh School of Medicine, formerly on the faculty of Northwestern University Medical School in Chicago, served during World War II, associated with the Veterans Administration Hospital, where she died June 7 aged 53, of carcinoma of the pancreas

Hamilton, Richard Gillespie ⊕ Pittsburgh, born in Roswell, N M, Dec 12, 1908, University of Pittsburgh School of Medicine, 1933, associate professor of rhinolaryngology at his alma mater, specialist certified by the American Board of Otolaryngology, member of the American Academy of Ophthalmology and Otolaryngology, American Society of Ophthalmology and Otolaryngologic Allergy, and the American College of Allergists, fellow of the American College of Surgeons, served on the staffs of Eye and Ear, St Francis, and Elizabeth Steel Magee hospitals, died May 22, aged 48, of a heart attack

Maun, Mark Emmett ⊕ Detroit, born in Laurel, Nebr, April 8, 1910, Northwestern University Medical School, Chicago, 1937, specialist certified by the American Board of Pathology, member of the American Association of Pathologists and Bacteriologists and the College of American Pathologists, formerly associate professor of pathology at Wayne University College of Medicine, served as consulting pathologist at Jennings, St Joseph, Deaconess, and old St Mary's hospitals, associated with Doctors Hospital and St Clair Hospital, director, Metropolitan Hospital, where he died May 20, aged 47, of cancer

Melson, Oliver Clarence ⊕ Little Rock, Ark, born in Conneaut, Ohio, Oct 8, 1891, Western Reserve University School of Medicine, Cleveland, 1916, clinical professor of medicine at the University of Arkansas School of Medicine, specialist certified by the American Board of Internal Medicine, veteran of World War I, fellow of the American College of Physicians, of which he was an ex-governor, served on the staff of the Mayo Clinic in Rochester, Minn, chief of staff St Vincent Infirmary, an attending physician at Arkansas Baptist Hospital, died in Pittsburgh April 30, aged 65

B ind, Alice Messinger, Baltimore, born in Rochester, N Y, Feb 2, 1926 Boston University School of Medicine, 1949, interned at the Gallinger Municipal Hospital in Washington, D C, where she served a residency, formerly a resident at the Georgetown University Hospital in Washington, D C, associated with the University Hospital, associate in medicine at the University of Maryland School of Medicine, certified by the National Board of Medical Examiners, died in Rochester, N Y, June 9, aged 31, of cancer of the pancreas

Hough, William Hite ⊕ De Land, Fla, Georgetown University School of Medicine, Washington, D C, 1904, member and past-president of the Medical Society of the District of Columbia, formerly on the faculty of George Washington University School of Medicine in Washington, D C, and at his alma mater, served on the staffs of Episcopal Eye Ear and Throat Hospital, St Elizabeths Hospital and Garfield Memorial Hospital in Washington D C died May 26, aged 79, of cancer

Woolston, William Henry ⊕ Albuquerque, N M, Northwestern University Medical School, Chicago, 1915, fellow of the American College of Surgeons, past-president of the Southwestern Medical Association, served on the faculty of his alma mater, veteran of World War I, associated with St Joseph Sanatorium and Hospital, consultant, Veterans Administration Hospital, formerly director of the Presbyterian Hospital Center, where he died May 10, aged 66, of coronary arteriosclerosis

Weil, Arthur Isadore ⊕ New Haven, Conn, University and Bellevue Hospital Medical College, New York City, 1914, veteran of World War I, formerly member of the board of health of New York City, for many years associated with the U S Public Health Service as medical officer in charge of the New Haven area, served overseas during World War I, on the staff of the Grace–New Haven Hospital, died in the Memorial Hospital, New York City, May 5, aged 69, of pneumonia, following a cystectomy

Golenkow, Valerian Gregoir, Cassville, N J, Thuringische Landesuniversitat Medizinische Fakultat, Jena, Thuringia, Germany, 1912, died March 24, aged 72, of cerebral hemorrhage and arteriosclerosis

Goodman, Daniel Carson, Flemington, N J, Washington University School of Medicine, St Louis, 1905, novelist and motion picture executive and author, consultant on the staff of the Hunterdon Medical Center, where he died May 16, aged 74

Greenland, Frances ⊕ Staten Island, N Y , New York Medical College, Flower and Fifth Avenue Hospitals, New York City, 1943, certified by the National Board of Medical Examiners, interned at the Staten Island Hospital, where she was a member of the staff, served a residency at the New York Infirmary for Women and Children, died May 23, aged 58

Gudenkauf, August Bernard, Sidney Ohio, Ohio Medical University Columbus, 1905, president of the board of directors of the Mutual Federal Savings Loan Association died April 30 aged 86 of coronary thrombosis

Haas, Lewis Lajos ⊕ Chicago, Magyar Királyi Pázmány Petrus Tudomanyegyetem Orvosi Fakultasa, Budapest Hungary 1918, associate professor of radiology at the University of Illinois College of Medicine, *killed June 2 aged 63, when he was struck by an* automobile as he was crossing a highway near Neuville 15 miles east of Quebec, while on a vacation

Hair, Charles H Chicago, Jenner Medical College, Chicago 1910 died March 7 aged 80

Halpin, Raymond William ⊕ Chicago Stritch School of Medicine of Loyola University, Chicago, 1950, interned at the Cook County Hospital, veteran of World War II, his affiliation with the U S Public Health Service Reserve terminated July 1956, on the staff of the Mercy Hospital, died in the Loretto Hospital June 2 aged 34 of injuries received in an automobile accident

Hanson, Estelle C Merrill, Pasadena, Calif , Woman's Medical College of the New York Infirmary for Women and Children New York City, 1891, died May 19, aged 95 of arteriosclerosis

Harsh Enoch Herbert Minerva, Ohio, Baltimore Medical College, 1901, member of the American Urological Association, served on the staffs of St Luke's and Lakeside hospitals in Cleveland, died in Alliance (Ohio) City Hospital April 17, aged 80, of coronary occlusion

Harten, Max ⊕ Brooklyn Long Island College of Medicine, Brooklyn, 1934, specialist certified by the American Board of Internal Medicine, member of the American Academy of Allergy, fellow of the American College of Physicians, associated with North Shore Hospital in Manhasset, N Y , the Kings County Hospital, and Brooklyn Jewish Hospital, where he died May 24, aged 51

Hawk, Luther Kahale, Chattanooga, Tenn , Chattanooga Medical College, 1904, died April 28, aged 78, of hypertension and arteriosclerosis

Heath, Llewellyn F , Georgetown, Ky , Hospital College of Medicine, Louisville, 1904, an associate member of the American Medical Association, formerly deputy coroner of Scott County, died in Lexington May 13, aged 85

Henderson, Thomas Martin, San Diego, Calif , University of Louisville (Ky) Medical Department, 1893, died in National City, March 27, aged 84

Henry, Gordon Fuller, West Palm Beach, Fla , Medical Department of Tulane University of Louisiana New Orleans, 1910, member of the Florida Medical Association, an honorary member of the board of directors of Good Samaritan Hospital, died April 25 aged 71, of cerebrovascular accident

Herkness, John Stoddart ⊕ Mount Union, Pa , Hahnemann Medical College and Hospital of Philadelphia 1910, school medical inspector for many years, a member of the board of health, consultant on the staff, J C Blair Memorial Hospital, Huntingdon, a director of the Central National Bank of Mount Union, died in the Lewistown (Pa) Hospital May 18, aged 70

Hexom, John Daniel, Decorah, Iowa, State University of Iowa College of Medicine, Iowa City, 1905, on the staff of the Decorah Hospital, died March 19, aged 78 of cancer

Higdon, Thomas L , Wayside, Md , Baltimore University School of Medicine, 1897, an associate member of the American Medical Association, died in Arlington Va , March 9, aged 88, of carcinoma of the stomach

Hoeffler, John Conrad, Newark, N Y , University of Buffalo School of Medicine, 1906, veteran of World War I, for many years member of the medical staff of the Newark State School, died May 18, aged 81, of coronary occlusion

Hollander, Samuel, New York City, Cornell University Medical College, New York City, 1906, served briefly with the New York City Department of Health died in the Beth Israel Hospital May 21, aged 74, of cardiovascular arteriosclerosis

Howell William Edward ⊕ Haleyville, Ala , Birmingham Medical College, 1900, served as mayor and as chairman of the school board died May 16, aged 89 of intestinal hemorrhage

Huber, John George, Evansville, Ind , Baltimore Medical College, 1898, veteran of the Spanish-American War and World War I, served as jail physician and county health officer, died May 10, aged 82, of arteriosclerosis

Huffnagle, Milford J ⊕ Philadelphia, University of Pennsylvania School of Medicine, Philadelphia, 1931, on the staff of the Germantown Hospital, died May 10 aged 51, of coronary occlusion

Irwin, Robert Sloan ⊕ Denver, Maryland Medical College, Baltimore, 1904, died in the Presbyterian Hospital May 16, aged 86, of coronary infarction

Jackson, Andrew Joseph ⊕ Waterbury, Conn , College of Physicians and Surgeons, Baltimore, 1915, member of the Industrial Medical Association, fellow of the American College of Surgeons, past-president of the Waterbury Medical Society and the New Haven County Medical Society, veteran of World War I, associated with St Mary's and Waterbury hospitals, died May 16, aged 64, of coronary disease

Jackson, Gustavus Brown, Santa Monica, Calif , Rush Medical College, Chicago, 1902, fellow of the American College of Surgeons, an associate member of the

American Medical Association, veteran of World War I, for many years practiced in Indianapolis, where he was president of the board of health, died May 8, aged 79

Jackson, Kenneth Pope ⊕ Bremerton, Wash, Rush Medical College, Chicago, 1938, on the staff of the Harrison Memorial Hospital, died May 5, aged 51

Jackson, Tatum W ⊕ Manchester, Ga, Atlanta School of Medicine, 1909, died April 30, aged 82, of bronchopneumonia and cerebral hemorrhage

Jacobs, William Frank, Daytona Beach, Fla, Homeopathic Medical College of Missouri, St Louis, 1907, for many years medical superintendent of the Bellevue Hospital in New York City, died May 14, aged 72, of coronary occlusion

Johnson, Charles Edwin, Homer, Ill, Marion-Sims College of Medicine, St Louis, 1897, died in Kankakee May 18, aged 84, of arteriosclerotic heart disease

Joseph, Louis David ⊕ Los Angeles, University of Illinois College of Medicine, Chicago, 1931, at one time practiced in Chicago, where he was associated with the Edgewater Hospital, on the staff of the Cedars of Lebanon Hospital, died May 21, aged 49

Kemp, John N ⊕ Saginaw, Mich, St Louis College of Physicians and Surgeons, 1895, served as health officer and as a member of the school board, for many years on the staff of the Saginaw County Infirmary Hospital, on the staffs of St Mary and Saginaw General hospitals, died April 20, aged 84, of chronic myocarditis

King, Earl Beardsley ⊕ San Francisco, University of California School of Medicine, San Francisco, 1931, assistant professor of obstetrics and gynecology at his alma mater, specialist certified by the American Board of Obstetrics and Gynecology, chief of obstetrics and gynecology at the San Francisco Hospital, died in the Herbert C Moffitt Hospital May 14, aged 50, of carcinoma of the pancreas

Levy, Moses Solomons ⊕ Smyrna, Ga, University of Georgia Medical Department, Augusta, 1906, served on the faculty of his alma mater, in 1916 commanding officer of the Old Georgia Hussars on the Mexican Border, veteran of World War I, at one time associated with the Veterans Administration in Augusta, Ga member of the Association of Military Surgeons of the United States, died in Kennestone Hospital Marietta, May 23, aged 71, of a heart attack

Lippincott, Walter Maynard, Lynbrook, N Y, Harvard Medical School, Boston, 1900, formerly on the faculty of New York Post-Graduate Medical School and Hospital, veteran of World War I, served on the staffs of the Meadowbrook Hospital in Hempstead, Nassau Hospital in Mineola, Mercy Hospital in Rockville Centre, and the South Nassau Communities Hospital in Oceanside, died May 15, aged 84

O'Donnell, William Francis ⊕ Washington, D C, Georgetown University School of Medicine, Washington, 1913, professor of pediatrics emeritus at his alma mater, specialist certified by the American Board of Pediatrics, member of the American Academy of Pediatrics, fellow of the American College of Physicians, served overseas during World War I, associated with Children's, Georgetown University, and Providence hospitals, died April 27, aged 64, of uremia

Openshaw, Eli Carlos ⊕ Salt Lake City, Utah, College of Physicians and Surgeons, Little Rock, 1911, formerly practiced in Santaquin, where he served as mayor, died in the Latter Day Saints Hospital April 10, aged 85

Roberts, William Burchard ⊕ Minneapolis, Hahnemann Medical College and Hospital of Philadelphia, 1901, veteran of World War I, died May 8, aged 81, of cerebral hemorrhage and myocardial insufficiency

Roop, Frank Sidney, Blacksburg, Va, University of Virginia Department of Medicine, Charlottesville, 1900, died March 14, aged 88, of rheumatic heart disease

Royce, Harold Thomas, St Petersburg, Fla, University of Toronto Faculty of Medicine, Toronto, Ontario, Canada, 1906, fellow of the American College of Surgeons, died April 14, aged 76, of carcinoma of the kidney with metastasis

Ryan, Michael D ⊕ Saginaw, Mich, Queen's University Faculty of Medicine, Kingston, Ontario, Canada, 1891, at one time county coroner and city health officer, for many years associated with St Mary's Hospital, died April 18, aged 89, of acute pulmonary congestion and arteriosclerosis

Scarboro, Edwin Rutherford, Fresno, Calif, University of Michigan Medical School, Ann Arbor, 1917, an associate member of the American Medical Association, fellow of the American College of Surgeons, veteran of World War I and won the Croix de guerre for heroism under fire in the Meuse-Argonne offensive, at one time on the faculty of his alma mater, died May 8, aged 66

Simmons, John Walter, Simpson, Kan, Kansas Medical College, Medical Department of Washburn College, Topeka, 1897, died May 9, aged 85

Steinmetz, Charles Gordon Jr, Philadelphia, Medico-Chirurgical College of Philadelphia, 1910, an associate member of the American Medical Association, veteran of World War I, served on the staffs of Presbyterian and Woman's hospitals, died in the Jefferson Hospital May 28, aged 69

Thomson, Thomas Leonard ⊕ Torrington, Conn, Hahnemann Medical College and Hospital of Philadelphia, 1901, past-president of the Torrington and Litchfield County Medical societies, formerly vice-president of the Connecticut State Medical Society, associated with the Charlotte Hungerford Hospital, where he died April 18, aged 84, of bronchopneumonia and carcinoma of the lungs

Timerman, Arthur Rood ⊕ St Joseph, Mo, Louisville (Ky) Medical College, 1894, past-president of the Buchanan County Medical Society, died in Ocala, Fla, May 18, aged 83

FOREIGN LETTERS

AUSTRIA

Undescended Testis —At the meeting of the Vienna Society for Pediatrics, in May, R Jonas discussed the cause, diagnosis, and treatment of cryptorchism False cryptorchism is a simple arrest of testicular development Spontaneous descent of the testis may occur between the ages of 12 and 17 years in patients with this condition This descent is explained by the excretion of gonadotropin during puberty True cryptorchism is a genetic disturbance, frequently associated with other malformations such as delayed fetal development of the sex organs which results in intersexual manifestations A boy with false cryptorchism should be operated on in the 12th to 16th year and with true cryptorchism in the 6th to 8th year so that the pathologically changed testis can develop in the right place An exact diagnosis is most important Association with hernia, inguinal pains, such rare complications as torsion of the spermatic cord, and every form of ectopia are also indications for operation

Tuberculosis of the Bones and Joints —At the same meeting, O Ruziczka said that he had treated, with tuberculostatic drugs, 48 children aged from infancy to 14 years who had tuberculosis of the bones and joints Treatment with these drugs can cure patients with the proliferative-granulating form of the disease if it is diagnosed and treated early The regenerative power of the bones is good in this age group Removal of the focus and follow-up after tuberculostatic treatment are necessary in patients with larger necrotic foci associated with caseation Of the 48 children, 13 were cured by general treatment and tuberculostatic drugs No recurrence was seen in follow-up examinations up to nine years later In 13 children removal of the focus was performed, and 3 others were given local antibiotic injections Tuberculous meningitis occurring simultaneously caused death in two patients Patients with uncomplicated synovial tuberculosis also showed good results with conservative tuberculostatic treatment Pyarthrosis must also be locally treated with the aid of injections or, after operation, with tuberculostatic drugs Tuberculous fistulas may close after a favorable influence on the basic osseous process In three patients they had remained closed for eight or nine years when last seen If they do not close, they must be excised Old proved methods of treatment as well as new possibilities of treatment have improved the prognosis of infantile tuberculosis of the bones and joints and shortened the duration of treatment A cure can be obtained with restoration of normal position, form, and function

CANADA

Tax Relief on Pension Contributions —For some time, several of the professional associations of Canada have been requesting the Minister of Finance to defer taxes on pension contributions by the self employed Professional men, particularly those in private medical practice, were concerned with the problem of no tax relief on money set aside for a pension plan to provide for their old age, whereas employees in firms with pension plans enjoyed tax relief on such contributions The minister of finance has now relented and permitted new arrangements closely in line with the recommendations of the Canadian Medical Association From next January, self-employed taxpayers may claim as deductions from earned incomes sums up to 10% of their income contributed to approved annuities or other specified forms of retirement funds Employed taxpayers who are already participating in a pension plan may supplement their present coverage by a separate annuity contract and may deduct personal contributions The way is also open for professional organizations such as the Canadian Medical Association to provide a trusteed fund for their members out of which an immediate annuity may be purchased at the age of retirement

Aminopterin Sodium as an Abortifacient —Bourne and co-workers (*Canadian Medical Association Journal*) report a case in which grave illness was produced by the attempts of a pregnant woman to abort herself by taking aminopterin sodium She bought 100 tablets and took 8 (4 mg) on one day, 8 the next day, and 4 the next day She had thus ingested a total of 20 tablets or 10 mg of aminopterin, according to her own statement, but she may have taken more Next day she developed a severe sore throat and later a diffuse erythema of the entire face with swelling and vesicle formation and an inflammatory reaction of the lips and gums The entire oral cavity and pharynx were tender and the patient was in severe distress When she was admitted to the hospital, abortion was taking place and the toxic effects of the drug were evident in lesions of the face, mouth, chest, and abdominal skin, but there was never any evidence of suppression of hematopoiesis She also suffered from temporary loss of hair Immediately after admission, treatment with a specific antidote, citrovorum factor (0 5 mg twice a day) was started The patient was also given penicillin and streptomycin Her symptoms subsided slowly, and it is thought that administration of the antidote may have saved the patient's life or at least hastened recovery

Control of Medical Care —At the meeting of the Canadian Public Health Association in Toronto in May, Dr Matthews of the Saskatchewan Department of Health discussed the control of the quality of medical care He noted that in the Health Insurance Plan of Greater New York, control is accomplished by the

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The items in these letters are contributed by regular correspondents in the various foreign countries

insurance agency and involves the use of a closed panel of physicians Dr Matthews believes that it would be better if controls were exercised by the physicians themselves In Canada, more confidence is placed on the results of examination of physicians by provincial licensing authorities and by the Medical Council of Canada If insurance agencies were to make a further distinction between physicians fit to practice and those unfit, they would not necessarily raise the standards of those they excluded but simply segregate them from their fellows In any health insurance plan, a probationary period for a participating physician is of value If every insurance agency were to set its own standards, confusion would result It is important that administrators of all insurance plans cooperate with the medical profession in insuring standards and indicating to the profession where such standards need tightening up Few evaluations of medical care have been made in Canada, and those few were usually made to solve a particular problem rather than to be on a continuing basis Administrators of hospital insurance plans tend not to care whether their clients are treated in hospitals giving good quality care With the forthcoming extension of hospital insurance in Canada, it would be natural to expect that payments by the government would be limited to hospitals known to maintain good standards of care Good results have been obtained with prepaid medical care in a Saskatchewan area in which an active assessment committee was elected by the medical profession of the area and granted broad powers by the district medical society This assessment committee had done a great deal of good in raising standards

The cost of medical care in a well-known prepaid plan in Ontario was analyzed by another speaker who showed that between 1930 and 1953, whereas personal expenditures in Canada had increased substantially for tobacco, alcohol, and transportation, expenditures on personal medical care had not increased relatively Between 1946 and 1953, the income of Canadian physicians in private practice has remained at a constant 1% of the total assessed income of all the taxpayers in Canada Other statistics prove that the net annual income of physicians in Canada between 1950 and 1954 increased roughly parallel with the average weekly income of industrial workers It has certainly not increased beyond that Hence, over these years, physicians are relatively as well off as industrial workers In the plan analyzed in Ontario, annual costs per 1,000 participants and utilization rates have increased steadily from 1949 to 1956 The utilization rate has increased from 2,300 to nearly 3,900 persons per year The increase in costs appears to be due to increased services, increases in fee schedules, and increases in the proportion of expensive services, mainly surgical Although it is unlikely that medical need has increased in the last few years among the population covered by this plan, it would seem that the more prosperous and leisured a society becomes, the more it worries about its health *The situation is reasonable* if the insurance plan is a voluntary one, otherwise there is a danger that excessive demands will be made on the medical profession without an increase in income, as has happened in the United Kingdom

This speaker also described a system developed in this health plan for sharing costs and number of services between physicians in the same county Where a physician consistently shows high average costs and a high rate of service, the amount payable to him may be subject to control, but few physicians in Ontario have been placed on this control system A general practitioner remarked that there will always be variations in costs of medical care from patient to patient and from physician to physician He called for an analysis of physicians expenses, an increasing item in the provision of medical care He also said that the profession must either give leadership or like what it gets in the health insurance plan

Hospital Bed Requirements—The Canadian Public Health Association discussed planning for hospital bed requirements at its annual meeting Mr John Osborne of the Ottawa Department of National Health and Welfare said there was a great variation in hospital beds per 1,000 population among Canadian provinces In post-war surveys it was found that the number of beds for acutely ill patients varied between 4 6 and 7 5 and for chronically ill patients between 1 5 and 2 0 Mr Osborne placed little faith in the idea of setting a fixed ratio of beds to population Two of the main provinces in Canada (Ontario and Quebec) receive many immigrants and therefore tend to be constantly short of beds, particularly since many of the immigrants come from areas of Europe where hospitals have a high utilization rate It is also paradoxical that in some provinces with a low bed capacity there is also a low utilization rate, even in spite of long stay and insurance coverage All this means that it is impossible to say, when a hospital insurance plan is started in a province, that the figure for hospital beds should be the same as in adjacent provinces with the same type of plan Hospital planning in Canada should include planning for domiciliary care, otherwise patients who could be treated at home will stay in the hospital Under the prospective provincial hospital plans, more adequate attention will probably be given to general planning, and provision of facilities for active, chronic, convalescent, rehabilitative, and other beds will probably be more balanced

Chronic Diseases—At the same meeting, speakers emphasized that it was time to stop trying to define chronic diseases narrowly and to imagine that physicians treat two separate entities—acute and chronic disease Throughout the course of the chronic disease, some type of treatment can always be given The difficult but essential problem to be overcome is the integration of treatment of chronic diseases with other aspects in the social and economic field The services for chronic diseases are provided in a wide range of facilities, including the general hospital, special hospital, convalescent home, nursing home, rehabilitation center, physician's office, and the patient's home Because it is necessary to insure that care is being provided at the correct level, the needs of each patient must be assessed and reassessed from time to time A controversy still exists as to whether separate institutions are needed for chronic diseases or whether these diseases should be treated in a general hospital Canada will probably adopt a compromise according to the area, sometimes using the wing of a general hospital and sometimes separate facilities It is also essential that there be a flow of patients between the various levels of care, this implies cooperation with other agencies Hospital admission policy must be coordinated with a satisfactory discharge and domiciliary care policy

Dr Charron of Ottawa suggested classification of patients with chronic disease for admission as those with a favorable rehabilitative prognosis, those with a poorer prognosis, those seeking alleviation by hospital care, and those in a terminal state Another problem is that of determining whether the authority for admission should be placed with the patient's physician or with a screening committee acting in close consultation with the physician The criterion for admission of a chronically ill patient is that active treatment be required The discharge arrangements are the responsibility of social service workers and should be anticipated when the patient's admission is arranged At present, the weakest link in the program in Canada is the social services, where a shortage of all classes of trained personnel exists Any research program on chronic diseases should include research into planning and administration and into the prevention of disease

Health Education—At the same meeting, Dr Gilbert said that health education is a basic function of all health departments It should also be the main objective of all voluntary health agencies and the basis of all activities of health workers The most efficient method of carrying it out is by personal contact, but in order to reach the whole population, mass media must be used even if such education is more superficial The health educator should be specially trained to assist other members of the health team Health educators might carry out locally a continuous health education program, but materials for this program might best be prepared and distributed at the national level The present one-year course for health educators is probably inadequate, and the University of Toronto is considering a two-year course leading to a degree

FRANCE

Antihyaluronidase Serum and Cancer—At a meeting of the Academy of Sciences in March, A Lacassagne and co-workers stated that they attributed the growth and invasiveness of mammary cancer in mice to the production of hyaluronidase They tried to stop this proliferation with antihyaluronidase serum The natural barrier of the connective tissue was thus strengthened The authors propose to try this serum as a palliative treatment of some cancers in human beings

Housewives' Eczema—At the February meeting of the French Society of Allergy, Coulant and Lopes stated that water eczema is not a matter of simple allergy to water or to any household product but that such products localize the disorders on the hands and forearms The cause is a parasitic infiltration When the parasitosis is cured, the eczema disappears and housewives may go on with their housework even if the cutaneous test with the localizing products remains positive

Cardiac Catheterization—J Facquet and co workers at the International Cardiologic Week reported that catheterization of the left side of the heart can be accomplished without significant risk through a bronchus under bronchoscopic control This method is not associated with any pleuropulmonary complication and is painless A simple puncture of the auricle has been made in 200 patients This makes it possible to make auricular tracings and to measure intra auricular pressures The procedure is chiefly useful in studying mitral valvular diseases, in patients in whom catheterization of the right side of the heart has failed Another advantage of the method is that it can be repeated several times The tracings must be interpreted with caution Allison and Linden's coefficient, bringing into account the zero reading of the pressure at the moment when the mitral valve shuts and opens is the best way to evaluate the pressure The pressure in the left auricle and ventricle can be measured simultaneously

Allergic Character of Peptic Ulcer—Iagov and Cosmulesco (*Archives des maladies de l'appareil digestif et de la nutrition*, February, 1957) stated that in guinea pigs sensitized to human serum or an extract of corn starch, the antigen injected under the gastric serosa gave a congestive zone at the point of injection Among 28 patients with peptic ulcers, only one did *not* respond to one or several tests Of 85 such patients, 31 showed a gastric eosinophilia It cannot be said whether allergy occurs before or after the ulcer is formed

Hypogalactia—Ruzicic (*Concours médical*, Feb 23, 1957) proposes to use the baby's thirst to measure hypogalactia in the mother The baby is placed at the breast, and after nursing he is given as much water as he wants The quantity of water imbibed is measured, and the total quantity thus taken in 24 hours is calculated The author believes that the quantity of water taken after nursing corresponds to the deficit of the mother's milk If the amount of water drunk is less than a third of the optimal quantity of milk the child should get, the child is merely observed, but if the amount is more than half of the optimal quantity, artificial feeding should be started

INDIA

Kwashiorkor—Subrahmanyan and co-workers (*Indian J Pediat* 24 112, 1957) state that kwashiorkor is common among malnourished children of the lower income groups in India It is caused primarily by a deficiency of protein in the diet, although vitamin deficiencies may be contributing factors Investigations carried out in the Central Food Technological Research Institute at Mysore have shown that a low cost protein food made from low-fat groundnut flour (60 parts), Bengal gram dhal (20 parts), and skim milk powder (20 parts) and fortified with calcium and vitamins is effective in the treatment of protein malnutrition The authors reported three patients with kwashiorkor treated with this low-cost protein food The patients were children aged 2 to 3 years Their diet survey revealed that the daily intake of calories and proteins was highly inadequate over a period of one or two years There was no history of any previous illness Generalized edema was present in all patients All had had diarrhea for 15 to 30 days Two showed mild angular stomatitis, and discoloration of the hair was present in two One showed crazy-pavement dermatosis over the legs and forearms, and the other two showed hyperpigmentation with dermatitis over the thighs and hips The serum protein and serum albumin levels were very low, but the serum globulin level was normal Routine hospital treatment for diarrhea and edema given for two days was of no avail Later the low-cost protein food was given in four divided doses in the form of gruel sweetened with 2 or 3 teaspoonfuls of sugar, the daily dose being 4 or 5 oz (113 3 or 141 7 Gm) One ounce (28 Gm) of this food supplied 11 5 Gm of protein, 210 mg of calcium, 230 mg of phosphorus, 0 4 mg of thiamine, 1 0 mg of riboflavin, 4 0 mg of niacin, 857 I U of vitamin A, and 71 I U of vitamin D A marked improvement in the general condition was noticed in 8 to 10 days, with complete disappearance of the edema taking three or four weeks Diarrhea, dermatosis, and hyperpigmentation all disappeared in time The patients were kept in the hospital for six to eight weeks The average loss of weight due to disappearance of edema was 3 lb (1 4 kg), and the total gain at the time of discharge was about 8 lb (3 6 kg)

Struma Lymphomatosa —Sathe and Sirsat (*Journal of Postgraduate Medicine*, April, 1957) reported 10 cases of thyroid glands removed surgically which on histological examination showed evidence of struma lymphomatosa Six of the cases were diagnosed clinically as malignant goiter The ages of the patients varied from 35 to 67 years, 7 were female and 3 male The duration of the disease ranged from one week to two years The patients complained of swelling in the region of the thyroid and symptoms of pressure on the trachea or esophagus Pain was present in three patients The enlargement was bilateral in all but one None showed signs of thyrotoxicosis Total thyroidectomy was performed on two and subtotal on eight patients In one patient, in spite of operative removal of the thyroid, relief from pressure symptoms was not complete and a roentgenogram four months after operation revealed a mass in the retrotracheal region In this patient there was postoperative growth and downward extension of the residual struma in the retrotracheal region

Family Planning —A family planning training center was established in Bombay for training physicians, health visitors, and social workers Five grants for opening and maintenance of family planning clinics and two for research on family planning were made by the government A detailed scheme for promoting family planning has been drawn up for the whole country It consists of the opening of government-aided family planning clinics, especially in rural areas, carrying on of publicity for family planning through audiovisual aids, training of medical and auxiliary personnel in family planning, laying down the standards for contraceptives, and undertaking of demographic, medical, and biological research studied

NORWAY

Infectiousness of Tuberculosis —While it is generally assumed that the risk of infection with tuberculosis varies greatly under different conditions, statistical proof of this assumption has seldom been undertaken In a 146-page monograph, Hertzberg and Backer of the Tuberculosis Division of the Oslo public health service have attempted this task They studied some of the 11,179 persons registered as new cases of tuberculosis in Oslo during the 14-year period, 1940 to 1953 In the homes of 2,361 of these persons there were 4,257 children under the age of 15 years Each of these homes was visited, all occupants undergoing tuberculin testing and a radiological examination These home contacts were classified according as they were tuberculin-negative, tuberculin-positive, superinfected (Pirquet reaction increased), or actively tuberculous The patients on whose account the homes were visited were classified in different groups according to the severity of the disease, with cavitation at one extreme and pure hilar adenitis at the other Account was also taken of whether tubercle bacilli were demonstrable by direct microscopy or culture Concomitant cough and sputum were also factors influencing the risk of infection The authors concluded that for children aged 0 to 4 years the risk of infection is three times greater when the patient suffers from cavernous tuberculosis than when he presents pulmonary infiltrations without radiological signs of necrosis It is hoped that these statistical facts may in some degree assist the phthisiologist

Herniation of Nucleus Pulposus —Berg and Kolstad, in *Tidsskrift for den norske lægeforening* for June 15, report a series of 135 patients with herniation of the nucleus pulposus Of these patients 100 were operated on A follow-up examination one to nine years after treatment showed that, in the operated group, 77 had achieved a complete cure with full capacity for work, 16 were improved, and 6 obtained poor results Though in the patients receiving only conservative treatment the condition was less severe, 11 5% obtained poor results, 60% were cured, and 28 5% showed some improvement Myelography was found to be essential to the diagnosis of herniation of the nucleus pulposus Fixation operations are now limited to a partial laminectomy or an archotomy of the adjoining arches The operation was followed in one patient by complete paralysis of both legs Slow but almost complete recovery was effected after conservative treatment

Symposium on Anticoagulants —Prof P Owren (*Nordisk medicin*, May 30, 1957) said that the risk of hemorrhage from anticoagulants was about the same for bishydroxycoumarin and phenindione, being very small in either case, with only about 2% of the patients suffering from this complication He deplored the lack of control groups as a check on the results claimed but he insisted that ethical and legal considerations prevented administration of placebos to patients who believe they are receiving bona fide treatment Dr T Hilden argued on the other hand in favor of control series to provide reliable evidence for or against long-term treatment with anticoagulants With an experience of more than 600 patients given long-term treatment, Owren said that the mortality was between 4 and 6% in the first year, but only 2 5% when the symptoms had lasted less than a year Dr C Bjerkelund gave an account of the 237 patients surviving myocardial infarction who were treated with anticoagulants in the acute stage of the disease While 119 had continued to receive anticoagulant treatment, 118 had not received it, but were kept under observation The relapse rate of infarction was much higher in the latter than in the former group The difference was most marked in the first year of the treatment in patients under the age of 60 Here the relapse rates were respectively 3 and 14% The chance of dying of a new infarct was greater for young than for elderly patients The latter were more liable to progressive cardiac insufficiency—a condition less amenable to anticoagulant treatment than infarction

PORTUGAL

Epileptic Psychosis—D Furtado (*Jornal do Medico,* 1957, no 740, pp 729-740) says that epileptic psychoses assume variable forms—confusional states, psychosomatic types, endogenous types, cyclothymia, and schizophrenia The author even found recurring paranoid episodes with hallucinations in patients with epileptic psychosis From the electroencephalographic viewpoint, interseizure psychosis appeared more frequently in patients with temporal lobe epilepsy, in whom the symptoms are psychomotor or purely psychic Also in centrencephalic epilepsy, with bilateral paroxysmal dysrhythmia, interseizure psychosis may be seen This does not occur in patients with focal epilepsy A strange feature of this condition is the normalization of the epileptic dysrhythmic electroencephalogram during the period of the interseizure psychosis

Herpes Zoster—Bastos Viegas and Cunha Veigas (*Jornal do Médico,* 1957, no 733, pp 327-330) obtained good results in 42 patients with herpes zoster by giving a daily dose of 20 to 60 mg of emetine chloride There were no side-effects When fever or systemic symptoms accompanied the pain and vesicular eruption, antibiotics were also given A prolonged anesthesia of the radicular zone was observed in some patients

TURKEY

Turkish Medical Association Centennial—The Turkish Medical Association was founded in 1856 at the termination of the Crimean war with the cooperation of French and English army surgeons At all times during the past 100 years the changes in the political and social structure of the country have to a high degree been realized by virtue of the activities of physicians devoted to medical and social progress Although a great deal has been accomplished, much remains to be done, especially in medical education The steady increase in population necessitates more physicians, but more and more students are deciding on careers in the fast-growing industries On the average 350 to 400 physicians are graduated annually At present there are 8,172 physicians (7,518 men and 654 women) of whom 4,192 are specialists and 3,980 are general practitioners Of the 8,172 physicians 2,260 or 1 for every 683 persons are located in Istanbul, 734 or 1 for every 1,581 persons in Ankara, and 427 or 1 for every 2,106 persons in Izmir More physicians are needed There are 759 vacancies for the position of staff physician in government hospitals, and 94 more health centers are needed These would require 204 health officers, 234 center physicians, 49 anti-malarial specialists, 33 anti trachoma specialists, 11 anti-venereal specialists, 21 phthisiologists, 104 pharmacists, 462 sanitary inspectors, and 315 nurses and midwives In 1956, 195 physicians, 61 specialists, 109 nurses and midwives, and 51 interns resigned Of 157 districts 28 are without a physician, 77 health centers have a full staff, 81 have only one physician, and 43 have none

The association's report on the financial status of physicians reveals that 80% of the specialists have no bank account worth mentioning, 75% are not home owners or owners of real estate, 16% have a car which they drive themselves, and 1% employ a driver Physicians fees are too low Of the general practitioners 82% have no bank account or property Attention was drawn to the discrepancies in general practitioners fees and salaries accorded engineers, some of whom receive 10 times as much as the physician

UNITED KINGDOM

Duodenal Ulcer in Children—Although duodenal ulcers are known to occur in children, Goldberg (*Brit M J* 1 1500, 1957) states that the incidence is much higher than is generally recognized He reports a series of 20 cases and emphasizes that the clinical findings differ from those observed in adults In the infant the condition is acute, with perforation and hemorrhage being common In the older child the presenting symptom is pain in most cases The location, character, time relation to meals, and relief by drinking milk suggest the diagnosis, but in about half the cases the pain is atypical In children the onset is often acute with severe generalized pain or pain referred to the umbilicus, right hypochondrium, or right iliac fossa Vomiting and pyrexia are often present The clinical findings may resemble those of appendicitis or intestinal obstruction, and, in error, operations are frequently performed for the latter conditions Hematemesis and perforation may occur

During the second phase the history is still atypical, but the symptoms are less acute The abdominal pain is often generalized, central in position, or in the right hypochondrium, and frequently it is not relieved by alkali, food, or vomiting It is often worse at night and may last from a few minutes to several hours Local tenderness may be absent All complications, except malignancy, are the same as in adults Hematemesis is more common than melena Pyloric stenosis occurs in about 25% of the patients and more frequently in older children The fractional test meal is of little help in diagnosis, as it usually shows normal results Even at laparotomy an ulcer can be overlooked, as there is little fibrosis and the outer coat of the duodenum usually appears to be normal The only aid that establishes the diagnosis beyond doubt is a barium meal, although the radiologic demonstration of the niche of a duodenal ulcer in children is difficult because of the rapidity with which the barium passes the duodenal cap With the exception of closure of perforations, the treatment of a duodenal ulcer in childhood and adolescence is medical Stress is an important causative factor

Medical Research Council's Annual Report—According to the report of the Medical Research Council for the year 1955-1956, carcinogens found in tobacco smoke have induced hyperplasia in human fetal lung grown in tissue-culture Poliomyelitis vaccination with the British vaccine has shown that the titers produced against all three types of virus are satisfactory, and experiments with monkeys show that it confers a high degree of immunity to challenge with a virulent strain In children aged 1½ to 9½ years, the attack rate of paralytic poliomyelitis, after vaccination, in 1956-1957, was only 20% of that in unvaccinated children Live attenuated vaccines are under trial

It was shown that a bacterial virus acts by attaching itself to the bacterial cell and injecting its desoxyribonucleic acid, which takes control of its host's synthesizing mechanisms, causing them to produce more viral desoxyribonucleic acid and protein Often bacteria become permanently infected with a phage virus and are able to transmit it to their progeny In work on experimental filariasis, it was shown that microfilariae remained in the lung capillaries during the day and were more generally distributed in the circulating blood at night The antifilarial agent, diethylcarbamazine citrate, acts like an opsonin and is active in the blood stream where the phagocytes are inaccessible Species of Wuchereria similar to the human type have been found in animals, and several species of mosquito are known to be vectors Control, by use of DDT, of the Simulium fly that is the vector of onchocerciasis has been successful The difference between normal and sickle-cell hemoglobins has been shown to be due to one peptide which bears a positive charge in sickle-cell hemoglobin with a pH of 6 4 but is uncharged in normal hemoglobin This difference is due to a valine molecule in the charged peptide and a glutamic acid molecule in the neutral peptide This is the first time that the effects of a single mutation on the chemical structure of a protein have been elucidated It is thought that when the sickle-cell-hemoglobin molecules lose oxygen, they may form fibrillar aggregates which attract one another into a parallel orientation, distorting the cell

Homografts are destroyed unless the graft is between identical twins or members of an inbred strain The power to destroy grafts is lost after irradiation Irradiated mice, normally expected to die, recover when inoculated with marrow which colonizes the irradiated host Under these conditions grafts from other species may survive Leukemic mice have been treated by irradiation to destroy all the blood forming tissue and then have been given a marrow graft from a healthy animal

Obstetrics and the General Practitioner—Although the number of confinements in the hospital is increasing, many women prefer to have their babies at home under the care of the family practitioner or in a local hospital where he has access to beds The National Health Service has done little to encourage domiciliary midwifery, apart from paying the physician a little extra for his services The College of General Practitioners has published a survey of general-practitioner obstetric services, based on 4,277 deliveries conducted by 117 family physicians in the southwest part of England About half these physicians had received postgraduate hospital training in obstetrics, and 90% had been practicing domiciliary obstetrics for more than five years According to the report, the standards are excellent, but this is based on the work of a selected and well-qualified group and does not necessarily reflect the obstetric standards of general practitioners throughout the country Each physician selected for this review averaged 30 obstetric cases a year, about a third being delivered in general-practitioner hospitals and the remainder at home Most of the physicians had diagnostic laboratory and radiologic facilities, and about 67% had access to beds in local hospitals—which is unusual under the National Health Service This does not reflect the facilities generally available to general practitioners for obstetric work The survey is therefore biased in favor of good obstetric care

According to the survey, the perinatal mortality for deliveries in this general-practitioner service is 23 5 per 1,000 total births, a figure that should be reduced by more careful selection of cases Hypertension, prematurity, breech presentation, multiple pregnancies and multiparity increased the perinatal mortality and, in the opinion of the writers, require hospitalization with specialist care Just under 20% of the deliveries were in this class The report emphasizes that there is greater scope for the use of local analgesia and the prophylactic use of ergonovine maleate in domiciliary obstetrics It also points out that it is a pity that the National Health Service does not do more to promote a full general-practitioner maternity service Unfortunately, owing to other commitments, the general practitioner cannot always be present at a confinement when called The survey shows that he attended 63% and was present at the actual delivery in only 48%, the local midwife or hospital physician delivered the remainder This is no reflection on the general practitioner but on his lack of facilities for good obstetric work The Royal College of Obstetricians and Gynecologists recognizes this and suggests that a way be found for him to devote sufficient time to maternity cases This might be attained by diminishing the number of other patients on his list and by making a commensurate increase in his fee for obstetric services

CORRESPONDENCE

HYPOGLYCEMIC VERSUS ANTIDIABETIC

To the Editor —The notes of caution in the editorial in the June 1 1957, issue of THE JOURNAL on the use of tolbutamide (Orinase) in the treatment of the diabetic are commendable I feel, however, that there are certain aspects of the subject which should receive more consideration

It seems to me that the problem of seeking oral substitutes for insulin has pointed up the important question of what it is we aim to accomplish in treating the diabetic The philosophical concepts which arose from the contributions of the early investigators in the field such as Rubner, Voit, Lusk, and Dubois would appear to indicate that this common and remarkable disease is primarily the result of a defect in the utilization of the dextrose molecule by the human organism What should, therefore, be the aim in therapy but to seek those measures which would correct this metabolic derangement and recreate the conditions necessary for increasing the consumption of dextrose by the body Certainly the discovery of insulin proved to be that boon to the diabetic in that it became possible for the diabetic to utilize amounts of glucose equal to normal amounts Surely the return of the blood sugar to limits close to the normal range served as a secondary accomplishment of the increased capacity for glucose utilization made possible by the use of insulin As a matter of fact, many physicians are sufficiently convinced that recreating an approximately normal capacity to utilize glucose is the basis for ideal therapy regardless of how the blood sugar is affected What most of us seem to forget is that the aim in therapy is not primarily to depress the blood sugar but to seek to re-establish a normal physiological state for carbohydrate utilization It seems to me that the whole idea of seeking an orally given agent with hypoglycemic properties is based upon a false concept, for one must realize that agents with this property need not necessarily have a salutary effect upon the derangement in carbohydrate metabolism which is so pronouncedly a *sine qua non* of diabetes mellitus

Some of us have lived through the era of synthalin and recognized its hypoglycemic properties to arise from specific organic damage to the liver It is well known that hepatectomy in the animal results in the quick onset of hypoglycemic convulsions, that ligating the hepatic artery frequently does the same thing that phosphorus and chloroform poisoning produce hypoglycemia, and that hepatitis and cirrhosis of the liver with cholemia are accompanied by hypoglycemia It seems to me that thus far the investigational studies with tolbutamide indicate that it is probably an hepatotoxic substance and interferes with the activity of glycogenolytic enzymes, thus producing its hypoglycemic properties Even if some of its activity is related to interfering with "insulinase," it still remains a liver poison I fear that the recent excitement about orally given hypoglycemic agents will ultimately meet the same fate as synthalin

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CARBON TETRACHLORIDE SUBSTITUTES

To the Editor —Dr John H Schafer, in the Correspondence section (*J A M A* 163 1179 [March 30] 1957), rightly raised the question 'what substitutes" to the statement attributed to the New York City Poison Control Director, Harry Rabin, in an editorialized article in which he was quoted as saying that carbon tetrachloride is "so vicious that it should be banned from every home" There is no disagreement with Rabin s statement Fortunately, there are a number of commercial substitutes for carbon tetrachloride that are likewise noninflammable and in addition are considerably less toxic and hazardous for the home user The chief components of these substitute formulations are methyl chloroform, trichloroethylene, and perchloroethylene Although they are noninflammable and present far less risk of injury to the adult user, whose chief exposure is by inhalation, they should by all means possible be kept out of the reach of children, they cannot be taken internally without the possibility of serious effects Moreover, the substitute formulations commonly contain inhibitors of various sorts, which in turn possess varying degrees of toxicity Taken orally, methyl chloroform is reported to be somewhat more injurious than carbon tetrachloride, trichloroethylene and perchloroethylene are, however, considerably less poisonous by mouth than is carbon tetrachloride For the home user the price differential between carbon tetrachloride and its substitutes is insignificant These chlorinated hydrocarbons are recommended as replacement for carbon tetrachloride for spot-removing around the home But their careless use in unventilated spaces or in association with alcoholic intake before, during, or after use may still subject the user to possible injury

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MISCELLANY

AMERICAN MEDICINE ABROAD—PUSAN, KOREA

Lou Hazam

This is the first of a series of on-the-scene reports from the 'March of Medicine' production team, which is traveling around the world to film an hour-long television program on the work of American doctors abroad—the services they perform, the conditions they face, the personal satisfaction they receive in their unofficial roles as America's medical diplomats The author, Mr Lou Hazam, has written all but one of the 'March of Medicine' scripts since the series started in 1952 In this article, he tells of the dedicated work of the Maryknoll Sisters in Pusan, Korea Also on the 'March of Medicine' itinerary are such places as Hong Kong, Sarawak, Burma, Nepal, India, Ethiopia, Lebanon, Turkey, and Guatemala The program, sponsored and produced by Smith, Kline & French Laboratories in cooperation with the American Medical Association, will be seen in color next spring over the NBC television network —Ed

High on a hill overlooking the sprawling, bursting-at-the-seams city of Pusan, Korea—swelled by thousands of refugees from the Communist north—four American doctors, who wear a special and distinctive habit, examine and treat the sick who line up outside their door by the hundreds, often as early as midnight They are the Maryknoll Sisters of St Dominic

"They just bed down and wait for us," said Sister Angelica, the Superior, and a nurse by training, showing me the long line that stretched out of sight down a cobblestoned alley to the street "I've gradually persuaded them not to start a line at 2 a m , but as it is, they're there when we get up—there before dawn "

I looked down the line, and as far as the eye could see were the sick, the halt, the lame, the blind, little wrinkled old women sprawled on faded, tattered pieces of canvas infants wrapped on their mothers backs balloon-trousered men, their families clustered close around them dark-haired children, wearing nothing much from the waist down scores squatting in pain, rocking back and forth as they waited

"They come from as far away as Seoul,' I heard the Sister's voice go on "But by far, most of our patients come from the homes, the huts, the shanties, and tents around Pusan And since some have no homes, they come to us right off the streets Sometimes they come on foot, and many times you see them being carried in on the back of some member of their family "

She told me that often they come too late, after precious weeks of trying to treat the sickness themselves—perhaps by burning the skin over the afflicted area with a hot punk

"You know the idea If you can create a pain worse than the one that hurts you, you somehow make the first pain better Or the old pagan idea—fire cleanses everything "

The history of the Maryknolls in Korea goes back to 1924, when the order was first established in the north There they remained until World War II started Korea was, of course, Japanese dominated at the time, and the Sisters were sent back to the States on the Gripsholm with the first exchange of prisoners They returned in 1949 to Pusan, only to be caught by the Communist invasion from North Korea This time they were evacuated to Japan, where they remained until April, 1951 Finally, with General MacArthur's express permission, they were allowed to return—the first civilian medical team to go back to Korea The armed forces gave them a former Japanese estate totaling some four acres, all walled or fenced in When I found them, they were working along just as if nothing had happened to interrupt them

"We open the gate at 8 30 in the morning,' continued Sister Angelica "We send out one of our nurses first, to go along the line and seek out the critically ill We try to take care of them ahead of the others "

I watched the gates open and the nurse emerge and proceed up the line I saw the patients gather about her listened to families recite the history of their troubles in Korean, which I was sorry I could not understand Once, satisfied, I saw her motion a woman, propped against the fence, inside Quickly her husband bent down, pulled her somehow on his back and then trotted his burden through the gates—two doll-like figures whom I was told had walked miles to reach here the night before

What kind of cases do these Sisters see? They showed me a chart

Diagnosis	*Frequency*
Cardiac	5–10% of all patients
Cirrhosis of the liver	4% of all patients
Diabetes	2% of all patients
Hypertension	5% of all patients
Malnutrition	90% of all patients
Tuberculosis	1,700 average per month

Yes, mostly tuberculosis—whatever else may bring them in—and malnutrition underlying almost all illness

The Sister doctors examine and treat patients in the clinic from morning until about 5 30 in the afternoon, assisted by a few Korean doctors and nurses on the staff, and augmented by Sisters trained as pharmacists and laboratory technicians The doctors, considering the unending stream of patients day after day, appeared remarkably cheerful Sister Agnus Therese and Sister Lois had both graduated from Marquette University Medical School and interned at St Vincent's Hospital in New York Sister Gilmary secured her medical degree from the Women's Medical College, Philadelphia, and studied pediatrics at Duke University Hospital Sister Maria Fidelis had also attended Marquette and had gone on to further work in Cincinnati They are assisted by 9 or 10 registered nurses, all from the States

Sometimes there have been more than a thousand patients waiting in line to see them The record over the years

Year	No of Patients
1951	180 697
1952	410,529
1954	488 991
1955	381 742

The operation is strictly an outpatient clinic operation While they are presently building a hospital, they have no beds available Patients are treated, go home and return when necessary, lining up at one side of the gate as returning patients As pointed out, a high percentage is afflicted with tuberculosis—pulmonary the highest—tuberculosis of the bone, and also meningitis, especially in children, and many with peritonitis

Second on their list were intestinal infections of various kinds, particularly those that produce the typhoids Korea is called a 'parasitologist's paradise because of the number and variety of parasites found in that country For example, roundworm, hookworm, ameba, lung and liver flukes, and Trichuris As one medical observer put it, "multiple parasitic infections occur frequently, the coexistence of two being more common than a single infection' Ninety-five per cent of the Koreans are believed to have parasitic infection

According to those who have studied the problem, the main source of ill health has been established as (1) poor sanitation, (2) the eating of raw fish, and (3) the traditional use of night soil as fertilizer—all this plus the impact of war, bringing with it food shortages and inadequate housing

Sister Gilmary is in charge of the clinic s tuberculosis program and leaves the clinic grounds every afternoon to go on a home visit

'This new program of ours grew out of the conviction that we were doing more harm than good treating recognized adult tuberculosis patients here at the clinic, where those with positive sputums could be a menace to other patients Also, we knew that in order to be treated properly, they should be resting, and not have to walk to the clinic So we restricted our tuberculosis program to those who reside in our own area, where we could readily reach them, and put them to bed at home A nurse sees each patient every week, and I try to see each one at least once a month We never make these visits at any specified time, she declared, 'since we want to see if the patient is really cooperating "

The 'March of Medicine' will include such a visit in its film report of the Maryknoll Clinic

As I was leaving, a little boy about 5—just back from school—ran up and hugged Sister Angelica s skirts

'And who's this?' I asked

'Oh, this is our Ashcan baby, Bundo That's Korean for Benedict

"Ashcan baby?'

"Yes He was dropped in an ashcan at our gate when he was just a year and a half old that's a guess—the age, I mean We found him and brought him in and warmed him by the fire He was just skin and bones After a time we found a Korean family on the grounds to look after him We support him, of course—providing the clothing he needs and food, and pay the family for caring for him "

She smiled apologetically as she held him close to her "Just a little extracurricular activity," she said

I looked at the fat, healthy, laughing little Bundo, and around me at the busy sisters, serving so far from home in the best tradition of medicine, bade them good-bye and turned my face toward Hong Kong—next stop on the March of Medicine's' agenda—wondering what I'd done with *my* life

LAW DEPARTMENT

MEDICOLEGAL ABSTRACTS

Statute of Limitations Concealment of Cause of Action—This was an action for damage for injuries allegedly caused by the malpractice of the defendant physician The jury returned a verdict in favor of the plaintiff and the trial court sustained the defendant's motion to set aside the verdict and grant the defendant a new trial From this action of the trial court, the plaintiff appealed to the Supreme Court of Appeals of West Virginia

The defendant removed the plaintiff's gallbladder on June 16, 1947 During the time she was in the hospital following the operation, and in the course of office calls after she was discharged from the hospital, the plaintiff complained to the defendant of pains in her abdomen The defendant assured her, however, that she could not expect to recover immediately from an operation such as she had had and that she would be all right From August, 1947, to October, 1953, the plaintiff consulted a number of physicians for various ailments She complained to them of pain in her abdomen, they gave her answers similar to that of the defendant Finally in October, 1953, the physician who was then treating the plaintiff had x-rays taken and they disclosed a hemostat in the plaintiff's abdomen Suit was filed in 1954

The defendant contended that the plaintiff's action was barred by the one-year statute of limitations with respect to malpractice Section 55-2-17 of the West Virginia code provides that the statute of limitations will be tolled if the person, against whom the right of action has accrued, obstructs the prosecution of such right by any indirect ways or means In order for this provision to apply, said the supreme court, there must be an affirmative act designed to conceal the existence of liability, and to operate in some way upon the plaintiff so as to prevent or delay suit, mere silence is not sufficient The evidence showed that the defendant physician had no knowledge of the presence of the hemostat in the plaintiff s abdomen until after the taking of the x-rays in 1953 Since the cause of action against the defendant accrued at the time of the gallbladder operation and there was no actual knowledge, fraud, or concealment on the part of the defendant which would toll the statute of limitations, the supreme court concluded that the judgment of the lower court in favor of the defendant physician should be affirmed *Gray v Wright, 96 S E (2d) 671 (W Va, 1957)*

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Sporadic or Non endemic Familial Cretinism with Goiter J B Stanbury and E M McGirr Am J Med 22 712-723 (May) 1957 [New York]

The authors describe 3 types of familial nonendemic cretinism with goiter resulting from primary failure at any of the essential steps in the synthesis of the thyroid hormone In the first type, which occurred in a 16-year-old girl, the defect was a failure to utilize trapped iodide The patient was 1 of 7 siblings, 4 of whom, including the patient, were cretins with goiter She was dwarfed, grossly retarded mentally, and had a large nodular goiter, over which a bruit and a thrill were present The concentration of the protein-bound iodine in the serum was 1 mcg per 100 cc When radioactive iodine (I^{131}) was given orally, a large fraction of it accumulated with remarkable rapidity in the thyroid Maximal values were observed in the gland within 2 hours When the accumulation had reached a plateau the patient was given a dose of 2 Gm of potassium thiocyanate Immediately there was a striking and rapid disappearance of the I^{131} from the gland Thyroidectomy was performed, and only minute amounts of iodine were detected chemically in the thyroid Similar observations were made in 2 goitrous and cretinous brothers of the patient The metabolism of iodine appeared to be identical with that in patients receiving full doses of the antithyroid drugs of the thiocarbamide group Since these drugs exert their antithyroid effect by inhibiting the transfer of iodide to tyrosyl residues through an enzymatically controlled oxidative step, it seems reasonable to suppose that the capacity to perform the oxidative step was lacking in these patients While the thyroid was able to concentrate trapped iodide from the serum it could not produce iodotyrosines from tyrosyl residues and iodide, presumably because of lack of an oxidative enzyme

In the second type, present in a 25-year-old woman who was physically stunted with disproportionately short extremities, mentally backward, and with a multinodular goiter, the rate of disappearance of stable iodine from the thyroid was calculated from measurements of the rate of disappearance of I^{131} from the gland and the urinary content of I^{131} and stable iodine before and during the administration of 1-methyl-2-mercaptoimidazole (Methimazole), a drug which blocks the incorporation of iodide into organic compounds The rate of disappearance of iodine proved to be greater than could have been possible if the secretion product had been exclusively triiodothyronine or thyroxine, else the patient would have been thyrotoxic Also, when the amount of "hormone" leaving the gland was calculated from mean values for urinary excretion of stable iodine and uptake of I^{131}, it was found that more than 1 mg of iodine (5 times the normal value) was secreted daily Chromatographic study of the serum disclosed normal amounts of triiodothyronine and thyroxine in the blood, but 4 days after a large dose of I^{131} only a trace of thyroxine could be identified in the thyroid Iodine in the gland was almost entirely present as monoiodotyrosine and diiodotyrosine These observations suggest that in this second type the thyroid gland cannot couple iodotyrosines into iodothyronines with sufficient speed to secure an adequate supply of hormone The presumption is that this defect is due to failure of enzymatic coupling, but proof is lacking

The third type of sporadic familial cretinism occurred in a 27-year-old man with multinodular goiter Calculation of the rate of disappearance of I^{131} from the thyroid, chromatographic analyses of the patient's serum at various times after administration of I^{131}, analysis of the thyroid after thyroidectomy, and a detailed chromatographic study of urine specimens suggested that the cretinism resulted from failure of iodotyrosines to deiodinate The hormone precursors monoiodotyrosine and diiodotyrosine escape from the thyroid gland into the blood and then into the urine because of lack of the enzyme, deshalogenase The result is a leak of iodotyrosines of sufficient magnitude to cause serious iodine deficiency Other biochemical abnormalities which have not yet been fully elucidated have been described by other workers Genetic studies support the concept of the hereditary transmission of some type of sporadic cretinism with goiter The condition shows a high familial incidence, and consanguineous matings are strikingly frequent among the parents of cretins The combined results of biochemical and genetic studies made in Scottish and in additional similar Dutch cases suggest that a single recessive gene controls the presence or absence of a single deiodinating enzyme

To What Extent Is Asthma an Allergic Response to House Dust? R Genevrier, L Michelet and M Claude Semaine hôp Paris 33 1546 1549 (April 20) 1957 (In French) [Paris]

Skin tests were made in 244 patients referred to the authors in 1955 for investigation of supposed respiratory allergy These patients, excluding 29 who had hay fever, fell into 3 groups (1) 14 with spasmodic coryza, (2) 23 with spasmodic cough and bronchial syndromes,

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The place of publication of the periodicals appears in brackets preceding each abstract

Periodicals on file in the Library of the American Medical Association may be borrowed by members of the Association or its student organization and by individuals in continental United States or Canada who subscribe to its scientific periodicals Requests for periodicals should be addressed Library, American Medical Association Periodical files cover 1948 to date only and no photoduplication services are available No charge is made to members but the fee for others is 15 cents in stamps for each item Only three periodicals may be borrowed at one time, and they must not be kept longer than five days Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order Reprints as a rule are the property of authors and can be obtained for permanent possession only from them and (3) 178 with asthma, with which this study is primarily concerned Positive skin reactions were obtained in 4 (28%) of the first group, 1 (4%) of the second group, and 113 (63%) of the third group Sensitivity to house dust was present in 108 of the patients with asthma, to feathers in 80, and to cotton in 25 Sensitivity to other allergens was much more rare, the commonest, to wool, being found in only 8 patients Many of the patients had a threefold sensitivity to house dust, feathers, and cotton The discovery of 67% of positive skin reactions in 178 patients with asthma is significant in itself, but it becomes more so when the findings are considered in relation to the age of the patients Sensitivities were present in 92% of those aged from 20 to 40 years The fact that a lower percentage was found in the patients under 20 was probably due to a greater importance of food allergies in the young Allergies of this kind were excluded from this study The percentage of positive reactions declined substantially in patients over 40, the decline being the greater the older the patient and the more recent the asthma Asthma in persons under 40 thus seems to be essentially the manifestation of an allergy and, except in young children in whom food allergies are undoubtedly important, this allergy is essentially respiratory in origin Nonallergic factors, such as bronchial infection, endocrine disorders, neuropsychiatric manifestations, and metabolic disturbances, on the other hand play a larger part in the dyspneic symptoms of older asthmatic patients

The allergenic importance of house dust has long been recognized, but the exact nature of the specific antigen it contains is not known Clinical observations have shown that many patients with asthma who are sensitive to house dust have no sensitivity to any of its known constituents Many attempts have been made to determine the chemical composition of the antigenic substance, but none has succeeded Indications are, however, that it is composed of a nitrogenous substance with large molecules, associated with hydrocarbons The excellent results obtained in asthmatic patients by desensitizing them to house dust provide further proof of the part played by house dust sensitivity in the production of asthma

Newborn Pneumonitis Virus (Type Sendai) Evidence of Infection in South-West Scotland R G Sommerville Brit M J 1 1145-1148 (May 18) 1957 [London]

Complement-fixation tests were performed on paired serums obtained from 175 adults with pneumonia, 97 infants with pneumonia, and 172 patients with influenza in south-west Scotland Newborn pneumonitis virus (type Sendai), which was isolated first from the lungs of newborn infants who died during an outbreak of pneumonitis in Japan, was used as antigen For comparison, hemagglutination-inhibition tests for antibody reacting with newborn pneumonitis virus were performed on 381 of these paired serums obtained from 162 adults with pneumonia, 58 infants with pneumonia, and 161 patients with influenza Evidence was found in adults for the existence of an agent which is capable of producing this antibody A fourfold rising titer was detected by complement-fixation tests in the serums of 9 patients, and clinical details recorded from these patients revealed that the infection presented as pneumonia in 3 and as mild influenza-like illness in 6

Pleuropulmonary Symptoms of Acute Leukemia E S Mazzei and G Masnatta Prensa med argent 44 1-5 (Jan 4) 1957 (In Spanish) [Buenos Aires]

The authors observed 4 patients with acute leukemia Review of the literature showed that the initial respiratory symptoms of acute leukemia are apparently infrequent On the basis of their observations and of 12 reports, which analyze the respiratory manifestations of acute leukemia, the authors arrive at the following conclusions The frequency of the anatomic lesions is greater than the clinical and radiologic findings This became evident on the miscroscopic studies of the anatomic lesions Pathogenetically, respiratory symptoms are caused either by infiltration of the parenchyma, which begins in the alveolar septum, by bronchial or bronchiole compression, or by subpleural infiltration There is a contiguous infiltration into the blood vessels, which causes pulmonary infarction According to clinical and radiologic findings, symptoms may start with respiratory manifestations similar to those caused by other pulmonary diseases (such as tuberculosis, neoplasm, acute inflammatory pneumopathy, pleurisy) The complete hematological examination can establish the cause

Inflation of Esophageal Hernial Sac in the Course of Induced Pneumoperitoneum J M Workman Am Rev Tuberc 75 823-827 (May) 1957 [New York]

The author reports the occurrence of esophageal hiatal hernia detected by roentgenographic studies as a result of inflation of the hernial sac in the course of pneumoperitoneum which was induced in a 66 year-old woman with pulmonary tuberculosis Detailed barium studies showed that the fundal portion of the stomach herniated through the esophageal hiatus The esophagus was short and tortuous, with some dilatation Air from the pneumoperitoneum extended above the diaphragm and in the hernial sac This complication of pneumoperitoneum appears to be extremely rare, only one other case, in a 45-year-old patient with findings very similar to those described, has been reported Formation of a redundant herniated peritoneal sac is one of the basic structural defects in sliding hiatal hernia Since this form of diaphragmatic hernia is not at all uncommon, the rarity of this complication of pneumoperitoneum is surprising

It may be that in most cases of sliding hiatal hernia the redundant peritoneal sac is considerably smaller than it was in this patient and in the case collected from the literature and for that reason might not be easily identifiable on roentgenographic or fluoroscopic examination The muscular tone of the collar' of the diaphragmatic hiatus may be adequate in young patients with hiatal hernia to prevent ingression of air into the sac Both patients in whom induced pneumoperitoneum was complicated by esophageal hiatal hernia were in the older age groups Pneumoperitoneum is less often given to patients over 40 years of age because it is less often effective The appearance of this complication is an indication for discontinuing the pneumoperitoneum

Evidence of Psychosocial Factors in the Development of Pulmonary Tuberculosis N G Hawkins, R Davies and T H Holmes Am Rev Tuberc 75 768-780 (May) 1957 [New York]

In an attempt to test the hypothesis that a life organizational stress situation of significant proportion appears typically shortly before the onset of pulmonary tuberculosis a group of 20 sanitorium employees 17 male and 3 female, who became ill with tuberculosis was compared with an individually matched group of 20 employees who remained well Each of the groups contained 1 physician, 4 registered nurses and 12 subordinate nursing and auxiliary personnel The matching included age, race, sex, marital status, education, time of employment job classification, income, skin test reading, appearance of roentgenograms of the chest, and previous record of certain chronic conditions Those who became ill had experienced a concentration of difficulties such as domestic strife, residential and occupational changes, and personal crises in the course of the 2 years preceding the change in a series of roentgenograms of the chest taken at 3-month intervals and leading to determination of pulmonary tuberculosis This concentration of difficulties, or situational crisis, was significant in comparison with the experience of the group of employees who were well The tuberculous group also evidenced a significant degree of psychoneurotic pathology and did not recognize or could not admit their personality deficit on questions in which this recognition was obvious

The conclusion appears reasonable that many of the employees who became ill did so in a situation of stress which would be conducive to a lowered resistance It is not suggested that stress must invariably accompany infection in order to produce progressive tuberculosis in man or that stress, if present, must be psychic in nature Within the acknowledged limitations of the test, however, the postulation of psychosocial crisis as one of the precipitant causes is tenable

The Effect of Butyl Sulfanilylurea on the Blood Lipids in Diabetes Mellitus G Corsini and L Guacci Minerva med 48 1119-1124 (April 4) 1957 (In Italian) [Turin, Italy]

Twenty-two diabetic patients, 14 female and 8 male, 21 to 78 years of age, were treated with butyl sulfanilylurea for a period of 22 days A dose of 2 5 to 3 Gm per day was administered for the first 2 or 3 days The dose was reduced to 2 Gm per day for the following 8 to 10 days and to 1 Gm per day for the remaining 10 to 12 days Ten patients had a mild form of diabetes, 8 a moderate form, and 4 (3 of whom were under 35 years of age) a severe form The patients were divided in 3 groups of 10, 7, and 5 patients respectively Insulin therapy was discontinued for at least one week in the patients of the first and second group and was continued but with smaller doses in patients of the third group The glycemia became normal and glycosuria disappeared after administration of the drug in the 10 patients of the first group, 7 with mild diabetes and 3 with moderate diabetes The drug reduced but did not bring to normal the glycemia and glycosuria in the 7 patients of the second group, of which 3 had mild diabetes, 3 moderate diabetes, and 1 severe diabetes The drug had no effect on the 5 patients of the 3rd group, which consisted of 2 patients with moderate diabetes and 3 with severe diabetes The value of total lipemia of the patients of the first group was reduced from an average of 741 mg per 100 cc before treatment to 610 mg (16 mg per 100 cc more than normal) after treatment, glycerides from 178 to 124 mg per 100 cc (38 mg per 100 cc more than normal), phosphatides from 261 to 225 mg per 100 cc (12 mg per 100 cc more than normal), and steroids from 264 to 223 mg per 100 cc (39 mg per 100 cc more than normal) The value of total lipemia of the patients of the second group was reduced from an average of 778 mg per 100 cc before treatment to an average of 681 mg after treatment (29 mg per 100 cc more than normal), glycerides from 216 to 161 mg per 100 cc (79 mg per 100 cc more than normal), phosphatides from 253 to 229 mg per 100 cc (14 mg per 100 cc more than normal), and steroids from 263 to 243 mg per 100 cc (51 mg per 100 cc more than normal) The value of the total lipemia of the patients of the third group increased from an average of 739 mg per 100 cc before treatment to an average of 825 mg (56 mg per 100 cc more than normal) after treatment, glycerides from 175 to 228 mg per 100 cc (163 mg per 100 cc more than normal), and phosphatides from 280 to 313 mg per 100 cc The concentration of steroids was not affected by the treatment

SURGERY

Mitral Commissurotomy and Late Postoperative Rheumatic Manifestations A Actis-Dato and S Olivero Minerva med 48 1411-1416 (April 21) 1957 [Turin, Italy]

The frequency of immediate and late postoperative complications due to a recurrence of rheumatic manifestations was studied in 200 patients, 49 male and 151 female, who had been subjected to mitral commissurotomy The patients were 20 to 51 years of age, most of them between 20 and 25 They were followed up for a period of 2 to 5 years Rheumatic or rheumatic-like manifestations were not observed in 43 patients before the operation Seventy-two of 91 patients with typical rheumatic infection were under 25 years of age Pleural adhesions were found in 15 patients during the operation 7 of these patients had presented rheumatic manifestations before the operation Adhesive or constrictive pericarditis was found in 4 patients Some accumulation of fluid in the pleura was found in 8 patients Aschoff's nodes were present in 8 of a group of 30 patients in whom a histological study of the auricles was made Twenty-two patients had rheumatic relapses within 50 days after the operation Relapses occurred in some a few months after the operation Fourteen of the 22 patients had articular rheumatism shortly before the operation, and 4 presented frequent tonsillitis Rheumatic manifestations had not been observed before the operation in 2 patients Late rheumatic relapses were observed in 57 patients, only 47 of whom presented rheumatic infection before the operation The authors think that there is a close relationship between the existence of rheumatic infection before the operation and the occurrence of postoperative rheumatic relapses Relapses were most frequent among patients 20 to 25 years of age

A Five to Ten Year Survey of Pulmonary Resection for Tuberculosis R F Lane and W E Harrison Canad M A J 76 845-846 (May 15) 1957 [Toronto, Canada]

The results of a survey 5 to 10 years after operation on the first 100 patients subjected to pulmonary resection for tuberculosis at the Willow Chest Center in Vancouver B C are reported There were 18 surgical and postoperative deaths Of the 82 survivors, 25 had undergone pneumonectomy and 57 lobectomy The sputum was free from tubercle bacilli in 77 of the 82 patients Sixty-eight of the survivors have full-time and 8 have part-time employment Of the 43 women in the group, 14 have had 27 pregnancies with 20 live births, without any activation of the tuberculous process There were 2 spontaneous abortions, and in 4 women abortion was induced

Supraclavicular Exploratory Excision of Lymph Nodes of Superior Thoracic Aperture to Ascertain Operability of Bronchial Carcinoma V H Denk and P Wurnig Thoraxchirurgie 4 504-508 (April) 1957 (In German) [Stuttgart, Germany]

The authors found that 41% of the patients subjected to thoracotomy because of bronchial carcinoma were inoperable, despite the use of all available clinical methods Since palliative resection does not improve the life expectancy, they believe that operability should be ascertained before the operation Reports of some observers indicated that metastatic involvement of the supraclavicular lymph nodes could be expected in 10% of the patients with clinically operable bronchial carcinoma To verify this, the authors performed bilateral exploratory excision of the cervical lymph nodes of the superior thoracic aperture in 100 patients with clinically operable bronchial carcinoma, that is, in those who had no palpable enlargement of the supraclavicular lymph nodes The 100 patients included 21 with squamous-cell carcinoma, 43 with polymorphic carcinoma, 18 with small-cell carcinoma, 1 with adenocarcinoma, 1 with endothelioma, and 16 with unidentified carcinoma, because operation of the clinically identified bronchial carcinoma was contraindicated by internistic factors

Cancerous involvement of the supraclavicular lymph nodes was found in 5 of the 100 patients in 1 with polymorphic carcinoma and with atelectasis of the upper lobe on the left side, in 1 with squamous-cell carcinoma with incomplete atelectasis of the upper lobe on the right side, and in 3 patients in whom enlargement of the hilar lymph nodes could be seen on the tomogram Two of these last 3 patients had a small-cell carcinoma and the third an adenocarcinoma The authors believe that bilateral exploratory excision of the cervical lymph nodes should be done in patients with centrally located bronchial carcinoma in whom the process is no longer limited to one segment Exploratory excision should always be carried out in patients with carcinoma of the branch bronchus and of the stem bronchus in which enlarged hilar lymph nodes can be recognized, insofar as there are no other signs of inoperability It is doubtful if exploratory excision is of much help in patients with carcinoma of the apical segment of the upper lobe, because in these patients inoperability is more often indicated by the tumor itself or by metastases in the upper mediastinum In patients with peripherally located carcinoma, exploratory excision is indicated only if the roentgenogram shows enlarged hilar lymph nodes However, bilateral exploratory excision of the supraclavicular cervical lymph nodes should always precede thoracotomy if the stage of development of the carcinoma cannot be definitely ascertained from the roentgenogram

Bilateral Adrenalectomy for Advanced Carcinoma of the Breast M Katz and H C Saltzstein Am Surgeon 23 301-307 (March) 1957 [Baltimore]

Bilateral adrenalectomy and oophorectomy was performed on 389 patients with advanced cancer of the breast Of these, 379 were collected from various sources in the literature and 10 of the authors' own patients were included For 23 patients it was too early for evaluation There were 29 (7 9%) post-operative deaths, 159 (43 4%) were unaffected by adrenalectomy, and 178 (48 7%) showed moderate to marked improvement Death occurred within 30 days after operation Subjective improvement was remarkable in patients with bone lesions and local recurrences They responded better to adrenalectomy than patients with visceral metastases, bone pain showed a dramatic disappearance as early as 24 hours after the operation The bedridden patients became ambulatory while the objective signs remained Disappearance of respiratory symptoms occurred without change in the roentgenologic picture The average period of remission is 9 to 10 months for those who respond to adrenalectomy, although 10 to 15% had a remission for 2 years and more Postmenopausal women had a slightly better response than premenopausal women They should be treated by combined oophorectomy and adrenalectomy, since the ovaries continue to secrete estrogens that can sustain the growth of the breast cancer

The Management of Bleeding Peptic Ulcer J B Holloway, J S Robinson and J B Thoroughman Am Surgeon 23 195-204 (March) 1957 [Baltimore]

The methods of treatment of 519 out of 1,998 patients with bleeding peptic ulcer admitted to hospital during the period from 1946 to 1955 were outlined There were 132 patients who did not require surgical treatment, 314 had had sufficient hemorrhage to cause some hematological changes No operation was performed on 221 patients, 12 of these refused surgical treatment and 6 had complications which precluded any elective surgical procedure All patients ceased bleeding promptly on a medical regimen High subtotal gastrectomy was performed in 46 patients, gastroenterostomy with vagotomy in 9, and hemigastrectomy with vagotomy in 38 Death occurred in one patient, caused by homologous serum jaundice 6 weeks after the operation Immediate surgical intervention offered the only hope of preventing death in 73 patients None of the 9 patients who did not undergo surgery survived Of the 64 patients who underwent surgery, 8 died High subtotal gastrectomy was performed on 26 hemigastrectomy with vagotomy on 36, and ligation of the bleeding artery on 2 Postoperative complications occurred in 43 of these patients Massively bleeding peptic ulcer is most effectively managed by a medicosurgical team Surgical treatment, if elected, should be performed without delay Blood and fluid should be administered generously preoperatively but rather conservatively after operation Diagnosis should be confirmed by roentgenographic examination, if possible, otherwise by surgical exploration The ulcer should be removed or exteriorized at the time of surgery Blind gastrectomy may be indicated in certain cases Hemigastrectomy with vagotomy was the surgical procedure that offered the best immediate and long-term results

Colotomy, Coloscopy, and Colectomy in the Management of Polyps of the Large Intestine S McLanahan and R E Martin Ann Surg 145 689 698 (May) 1957 [Philadelphia]

The authors report on 3 women between the ages of 37 and 50 years with polyps of the colon A pedunculated polyp at the level of the junction of the descending colon and sigmoid was revealed by an air-contrast study and confirmed by colotomy in the first patient, a transfixion suture was placed at the base and the polyp excised Two and a half years later the patient was symptom-free and well Sigmoidoscopy revealed a large polyp with a moderately broad base, 15 cm above the anal margin, in the second patient On laparotomy the polyp could be moved within the colon over a range of approximately 7 5 cm Because of its size and the sessile nature of the base, resection was carried out, with removal of a segment approximately 12 7 cm in length with the adjacent mesentery Coloscopy was done by passing a proctoscope proximally for 12 cm No other polyps were seen End-to-end anastomosis was accomplished and the abdomen closed The patient has been followed up for 1 year after the operation and has remained well In the third patient, with a 3-year history of blood and mucus in the stools, a deformity in the rectosigmoid areas was revealed by roentgenographic examination and interpreted as caused by diverticulitis Because of the suspicion that the diverticulitis was masking carcinomatous lesions, a partial left colectomy was performed It revealed many polyps of varying sizes associated with diverticulosis and diverticulitis Further resection was carried out to the midtransverse colon, and again the intestine contained scattered polyps The remaining proximal portion of the colon was then removed, and a few additional polyps were found The ileum was anastomosed end-to-end with the upper part of the rectum Pathological examination of the operative specimen revealed multiple papillomas showing early carcinomatous changes in one large pedunculated papilloma Sigmoidoscopy was performed 5 years after the operation and did not reveal any polyps

Three matters are of special interest with regard to polypoid disease of the colon (1) the close relationship which adenomatous polyps and papillary tumors bear to carcinoma, (2) the more frequent occurrence of multiple polyps than has been generally appreciated, (3) the indications that cancer of the large intestine and rectum is among the most frequently occurring cancers in man For the uncomplicated pedunculated adenomatous polyp, colotomy and polypectomy is usually adequate treatment, though exceptions exist and there is a growing tendency to carry out segmental resection more often The solitary sessile polyp usually is best managed by segmental resection The surgeon is under obligation to determine the presence or absence of other polyps In addition to palpation, transillumination, and direct examination of the exposed lumen, coloscopy is an available and helpful method Despite certain disadvantages, more frequent employment of this maneuver is encouraged The trend in treatment of multiple polyps in the colon is toward a more radical approach in order to effect better cancer prophylaxis Abdominal colectomy and ileoproctostomy may often be the procedure of choice Evidence is available to indicate that satisfactory function of intestine can be expected Surgical judgment is needed in the selection of patients for this radical approach

Ligation of the Inferior Vena Cava in Decompensated Mitral Heart Lesions E N Meshalkin and B E Imnaishvili Khirurgiya 33 36-45 (No 4) 1957 (In Russian with English summary) [Moscow]

The authors report their experience with ligation of the inferior vena cava in patients with mitral insufficiency in whom radical surgical interventions were contraindicated because of grave conditions caused by decompensation Ligation of the inferior vena cava was performed in 70 patients, but 20 of these patients died In order to reduce the risk involved and to be better able to judge the indications and contraindications to this operation, a preparatory physiological test was carried out Cuffs that interrupted the venous return for varying periods of time were applied to both thighs The venous stasis was gradually increased to 2 hours in the course of 1 week It was found that ligation is contraindicated in patients in whom the condition becomes worse when the cuffs are applied, in that there is a decrease in arterial pressure, an increase in dyspnea, and the cardiohemodynamics show deterioration

The patients were operated on under local anesthesia by an extra-abdominal approach with the patient lying on his left side Eleven of the 20 deaths occurred in patients who were in the late stages of the disease, that is, when decompensation had become irreversible In 15 patients in whom ligation of the inferior vena cava was carried out because their condition was too grave to permit a commissurotomy, this operation was performed from 3 to 8 months after the ligation, with death resulting in 3 of them The authors regard ligation of the inferior vena cava as a palliative measure for those patients in whom the radical operation (commissurotomy) is contraindicated It benefits these patients because it improves the circulation

Determination of the Portal Pressure by Puncture of the Spleen E I Halperin Khirurgiya 33 109-114 (No 4) 1957 (In Russian with English summary) [Moscow]

The determination of the portal pressure has become important since surgical methods have been developed for the treatment of cirrhosis of the liver It is an aid in establishing the diagnosis, and it indicates the advisability of surgical treatment The fact that the red pulp of the spleen is connected with the veins of the portal system in the spleen suggested that measurement of the pressure in the spleen must also show the correct value of the portal pressure To verify this, tests were made on 22 dogs and 6 rabbits The pressure in the portal vein was taken simultaneously The pressure in the spleen ranged from 100 to 220 mm H_2O and the portal pressure from 102 to 220 mm H_2O, that is, they were practically identical Later this method of measuring the portal pressure by puncture of the spleen was tried in 9 patients with cirrhosis of the liver The method caused no complications, either in the patients or in the laboratory animals

NEUROLOGY & PSYCHIATRY

Spread of Poliovirus Infection During an Epidemic of Unusual Severity Woodbury County, Iowa, and Dakota County, Nebraska, 1952 P F Wehrle, W McD Hammon, L L Cornell and R M McAllister Am J Hyg 65 386-403 (May) 1957 [Baltimore]

Studies of the evaluation of Red Cross gamma globulin in the prophylaxis of poliomyelitis afforded an opportunity for detailed study of the epidemiology of the disease For that study areas were selected on the basis of an unusually high incidence of poliomyelitis with a relatively high proportion of paralytic involvement Since these studies afforded an unusual opportunity for careful and detailed follow-up by a single group of investigators over a relatively long period of time, the epidemiologic findings are believed to be of value They are presented here for Woodbury County, Iowa, including Sioux City, and for Dakota County, Nebraska, including South Sioux City The principal industry for the two-county rural area is general farming, while the chief industries of the urban area are manufacturing and meat processing A review of the water supply, sewage disposal and general sanitation of the area did not disclose factors of likely significance in the epidemiology of poliomyelitis An outbreak of type 1 poliomyelitis of unusual intensity that occurred in this 2-county area in 1952 is described Unusual features noted were extremely high age-specific and total infection rates and unusually high paralytic and bulbar rates This outbreak followed 6 years of unusually high poliomyelitis incidence in this same area Yet even following this 7-year period, serologic evidence indicated that many susceptible children remained in this area The follow-up study differed somewhat depending upon the age group of the patient and the date of onset of the illness All patients in the 1-to-11-year age group were seen by members of the study team Those with onset prior to the date of the injection clinics (July 21 to July 26) were seen as time permitted later during the course of the epidemic and a detailed muscle evaluation was done Patients outside the 1-to-11-year age group were seen as time permitted The hospital records were reviewed Gamma globulin did not appear to prevent inapparent infection with poliomyelitis virus, since age trends during the latter portion of the epidemic were similar to those during the earlier course of the outbreak Epidemiologic evidence is presented which suggests that the opening of schools during the epidemic period did not change the course or age trends of the outbreak Epidemiologic and serologic evidence presented suggests that the poliomyelitis virus active in this area during 1952 was one with unusual pathogenic properties, probably leading to clinically recognized disease in about 5 per 100 susceptible children infected

Studies on the Development of Natural Immunity to Poliomyelitis in Louisiana II Description and Analysis of Episodes of Infection Observed in Study Group Households H M Gelfand, D R LeBlanc, J P Fox and D P Conwell Am J Hyg 65 367-385 (May) 1957 [Baltimore]

This is the second of 2 reports, in the first of which a plan for studying the circumstances relating to the natural acquisition of specific immunity to poliomyelitis was presented This plan, basically, provided for the observation during the early years of life of about 150 newborn infants (index children) in as many households selected to be representative with respect to residence in one of 3 study areas (New Orleans, Baton Rouge, and the Evangeline area), family size, race, and socioeconomic status Information concerning the entire household, as well as blood and stool specimens from the index children, were collected monthly as a routine Serums were obtained from all household members on admission to the study and annually thereafter As infection of the index child was detected, families were revisited to obtain both added information and specimens (blood and stool) from all household and indicated extrahousehold contacts Standard tissue-culture methods were employed both for detection of neutralizing antibodies in serums and for isolation of polioviruses from stools All statements as to virus isolation are based ultimately upon the use of cultures containing primary growth of monkey kidney cells since, although HeLa cell cultures were used exclusively initially, all specimens failing to yield virus in this system were retested in kidney cell cultures

This second report presents data relating to 114 documented household episodes of poliomyelitis virus infection involving 133 young children in a study of the acquisition of natural immunity to poliomyelitis in southern Louisiana from 1953 through 1955 Infections with the 3 serotypes of poliomyelitis virus occurred in children of all ages from 23 days upwards, with no apparent effect of maternally derived antibody and no significant predilection for any age group They occurred throughout the year, but with a marked peak in late summer There were distinct differences in type prevalence in the 2 years 1954 and 1955 and in the various areas in any one year These variations are believed to have resulted from relative deficiencies in type-specific seroimmunity in the preschool-age child population There were also marked differences in the relative predominance of the 3 types of virus in silent immunizing infections as compared with that in clinical infections This was believed to reflect the importance of strain virulence in the causation of disease, type 2 being especially deficient in virulent strains The observations of 1954 and 1955 do not give the same picture of the relative importance of family size and socioeconomic status in their effect on infection rates In 1954, family size seemed to be of greater importance and in 1955, socioeconomic status, but both factors are believed to predispose to early infection

Virus was isolated from at least 92% of infected index children The mean duration of fecal virus excretion was estimated as 51 days Infections in household associates of index children showed a 92% infection rate in individuals previously nonimmune, and a greater than 20% rate of reinfections in immune persons Evidence for reinfection consisted of significant rises in neutralizing antibody titer, demonstration of virus excretion, or both However, because of the relative infrequency with which virus was recovered from reinfected persons, it is felt that reinfection is of little or no importance in virus dissemination Although almost universal infection of the nonimmune members of a household where poliomyelitis virus is introduced is believed to be the rule, a number of examples of abortive household epidemics are cited Closely associated households are usually infected simultaneously or shortly following one another No significant clinical disease was associated with the 244 primary infections and 65 reinfections documented in this study Minor illness was probably associated in 27% A concept of the dissemination of poliomyelitis viruses through the community was presented

Platybasia W Kiær Ugesk læger 119 456 458 (April 11) 1957 (In Danish) [Copenhagen]

The case of platybasia in a man aged 44 with progressive neurological symptoms for 21 years had been interpreted as disseminated sclerosis The changes in the occipital foramen and adjacent bones found at autopsy established the diagnosis of typical platybasia The tendency for basilar impression to masquerade as syringomyelia or disseminated sclerosis is stressed In most cases of platybasia there is a primary anomaly in the development of the base of the skull which, as a rule, does not manifest itself before adult age Paget's disease is thought to be the most frequent cause of secondary platybasia, which is also seen in osteomalacia, hyperparathyroidism, and osteogenesis imperfecta Roentgen examination of the cranium can give a certain diagnosis of platybasia The diagnosis is often missed simply because the disease is not looked for (Scoville and Sherman) The condition can be improved by operative treatment

THERAPEUTICS

Studies of the Use of Glyco-Algin as a Solution for Transfusion T Takayama J Internat Coll Surgeons 27 557-567 (May) 1957 [Chicago]

Glyco-Algin was prepared by dissolving 0 3% sodium alginate in 5% dextrose It was adjusted to maintain a specific viscosity of 2 and a molecular weight of 15,000 Rabbits and dogs were bled at the rate of 20 cc per kilogram of body weight in 6 minutes and per minute, respectively, and Ringer's solution, dextrose solution, alginate sodium chloride solution, and Glyco-Algin were administered as supplementary fluids in equal volumes by slow (drip) transfusion or by rapid transfusion The results obtained with these 4 supplementary fluids were compared and showed that Glyco-Algin is an ideal transfusion solution in that it causes a sufficient increase in blood pressure, maintains the blood pressure at an even level, restores and maintains the circulating blood and plasma volumes, and stabilizes the elimination of urine and the carbohydrate metabolism without changing the level of extracellular fluids The limit of speed of transfusion of a polysaccharide such as Glyco-Algin is 0 6 cc per minute per kilogram of body weight This limit, however, is equivalent to 600 cc per minute in adults, and it is therefore entirely negligible in clinical cases Three hundred reports on the use of Glyco-Algin as a blood substitute in patients admitted to large hospitals in Japan confirmed the satisfactory experimental results

The Combination of Rauwolfia Serpentina and a New Xanthine Derivative in the Treatment of Hypertension T Rodari Minerva med 48 452-457 (Feb 10) 1957 (In Italian) [Turin, Italy]

Sixteen patients with essential hypertension, 14 with renal hypertension, and 10 with hypertension and cardiocirculatory insufficiency were treated with a combination of Rauwolfia Serpentina and a new xanthine derivative The average daily dose was 50 mg of the extract at 8% in total alkaloids of Rauwolfia Serpentina and 600 mg choline theophyllinate The combination had a hypotensive effect in 8 patients with essential hypertension, the systolic pressure was reduced by 30 mm Hg The combination had a beneficial effect on 9 patients with renal hypertension, the systolic pressure went down 30 mm Hg Slight changes were observed in the patients with cardiocirculatory insufficiency, in these patients the diuresis increased from 70 to 80% The pulse rate was reduced in all patients Intolerance or side effects were not observed

Oral Insulin Substitutes L J P Duncan and J D Baird Scottish M J 2 171-182 (May) 1957 [Glasgow]

It is now widely accepted that the toxic potentialities of carbutamide (BZ 55) preclude its clinical use Tolbutamide (D 860), however, in which the amino group of carbutamide has been replaced by a methyl group, may be sufficiently free from undesirable attributes to permit its therapeutic application The long-term effects of tolbutamide or any other hypoglycemic agent which may be produced in the future will have to be critically studied with particular regard to their possible toxic effects, to the feasibility of giving them indefinitely without loss of effect, and to their influence, if any, on the progression of the degenerative complications of diabetes If the answer to these questions should prove satisfactory, then their general therapeutic use would be justified Even then, diabetic patients would still have to restrict their diet and about 50% of them would continue to have satisfactory control by this means alone To substitute hypoglycemic sulfonamide therapy for dietary restriction would be quite unjustified and would merely encourage the persistence or development of obesity However, about 70 to 80% of middle-aged or elderly nonobese patients with relatively mild stable diabetes who, in addition to dietary restriction require a small or moderate daily dose of insulin, would be able to discard their insulin syringes and be treated with tablets taken by mouth Such patients, however, account for only 1 in every 4 or 5 diabetics presently receiving insulin

It should be recognized that the hypoglycemic sulfonamides are merely oral insulin substitutes' for a limited number and type of diabetic patients and they are in no respect 'oral insulins" The administration of insulin itself is still the only treatment to which diabetes will always respond, whatever its type or severity Insulin has withstood the test of time, it is safe and free from toxic attributes, it can be given indefinitely without any loss of effect, and it corrects all the presently known metabolic consequences of diabetes Any alternative for it should possess all these properties, and it is clear that these sulfonamide derivatives are deficient in several respects To be influenced or dominated by the preference of diabetics for a new form of treatment simply because it is more convenient and acceptable than the injection of insulin would constitute a disastrous failure in professional responsibility

In Vivo Effect of Ganglion Blocking Drugs and of Aneurin Administered Separately and in Combination F Manca and D Lolli Minerva ginec 9 193-199 (March 31) 1957 (In Italian) [Turin, Italy]

The effect of the ganglion blocking drugs and of aneurin administered separately and in combination was studied with the sphygmogram in a group of male and female cats of the average weight of 3 kg each The drugs were injected into the femoral vein and at times into the jugular vein The animals were under chloralose narcosis Experiments were carried out with doses of from 5 to 50 mg per kilogram of body weight of hexamethonium, 8 to 16 mg per kilogram of N,N,N'-N'-3-pentamethyl-N,N'-diethyl-3-azapentane-1, 5-diammonium dibromide (Pendiomid) and 3 to 110 mg per kilogram of body weight of aneurin The ganglion blocking drugs caused a depression of the circulation which was more evident the higher the initial pressure The hypotension was more marked the higher the dose injected The effect of the drugs lasted longer when higher doses were administered, the authors think that Pendiomid may have a longer-lasting effect The ganglion blocking drugs increased the sensibility of the animals to adrenalin Tension-regulating centers were still efficient even after the administration of a high dose of ganglion blocking drugs A dose of 3 mg of vitamin B_1 per kilogram of body weight caused in the animals under anesthesia a moderate and transitional drop of the arterial pressure Disturbances of respiration were observed with a dose of more than 20 mg of aneurin per kilogram of body weight and paralysis with a dose of more than 70 mg per kilogram The authors believe that ganglion blocking drugs and aneurin given in combination and in a low dose have a longer, even though not so intensive, hypotensive effect and do not cause a rapid drop of pressure

Antibiotic Combinations Antibacterial Action of Plasma of Normal Subjects After Oral Doses of Penicillin V, Tetracycline Hydrochloride and a Combination of Both W F Jones Jr and M Finland New England J Med 255 869-875 (May 9) 1957 [Boston]

Several definitions of synergism and antagonism have been offered by laboratory workers in their evaluations of the antibacterial or therapeutic action of combinations of antimicrobial agents by comparison with that of their individual components, other terms such as additive, inhibitory, potentiating, and neutral have also been introduced to describe the various types of combined actions Since none of these comparisons can readily be applied to the results of the use of these agents in the therapy of human infections, the authors approached the problem by assaying and comparing in the same subjects the antibacterial action of blood after administration of antibiotics in the same doses singly and in pairs The first pair of antibiotics studied was erythromycin and penicillin, the second pair was penicillin G and oleandomycin This report deals with a third pair—namely, tetracycline and penicillin V in 2 doses (500 mg and 1 000 mg)

Each of 5 normal young men took, in random rotation at intervals of 3 days or more, one or the other total dose of either tetracycline alone or penicillin V alone or equal parts of both Each subject, therefore, received 6 different doses, each dose was taken half an hour before breakfast Blood was obtained before and at the same intervals after each dose over a period of 24 hours, and the plasmas were tested for antistreptococcic and antipneumococcic activity From the data obtained the authors conclude that at any given time after the same total dose the combination of equal parts of tetracycline hydrochloride and penicillin V yielded appreciably less antistreptococcic and antipneumococcic activity and also less antistaphylococcic activity than that which was derived from the same total amount of one or the other individual component The differences in absorption and excretion of the 2 antibiotics used resulted in the best activity from penicillin V alone during the first few hours after the doses, and tetracycline generally yielded the greatest antibacterial activity thereafter, only occasionally and transiently did the combination produce greater activity than that resulting at the same interval from one or the other single agent

PATHOLOGY

Radioisotope Determinations of Blood Volume The Results of More Than 300 Tests W Freeman Am J Clin Path 27 393-400 (April) 1957 [Baltimore]

The circulating whole blood plasma, and cell volumes were determined with use of radioactive iodine incorporated in human serum albumin (Risa) for more than 200 hospitalized patients with serious medical or surgical disease Some 366 such determinations were made The method proved to be practical and safe, and it may be repeated daily without harm to the patient Determinations made with a sample of blood collected 1 minute after the injection of the dilute Risa were more accurate than determinations based on blood collected 5, 10, or 15 minutes after the injection One hundred twenty-two patients (61%) had normal values for whole blood volume, 112 patients (56%) had circulating plasma volumes in the normal range, and 96 patients (48%) had cell volumes that were estimated as normal Twenty-four patients (12%) had deficient whole blood volumes, 18 (9%) had deficient plasma volumes, and 50 (25%) had deficient cell volumes Fifty-four patients (27%) had excessive volumes of circulating whole blood and cells, and 70 (35%) had excessive plasma volumes This indicates that 150 (75%) of the 200 seriously ill, hospitalized patients were in no need of transfusions of any kind

In a person with a labile circulating blood volume, the Wintrobe and Risa hematocrit values, the level of hemoglobin, and the red blood cell count are not dependable indications of the need for transfusion of blood The transfusion of blood or fractions of blood may be disastrous in certain patients The danger is of major importance in patients who can not tolerate an overloaded volume of circulating blood, such as those who have arteriosclerosis, low cardiac reserve, or both Unless the patient is actively bleeding, one should not administer transfusions of whole blood or its fractions before determining the volumes of circulating whole blood, plasma, and cells

The Significance of the Non-specific Inflammation in Auricular Appendages of Patients with Mitral Stenosis C A Wagenvoort Acta med scandinav 157 307-318 (No 4) 1957 (In English) [Stockholm]

One hundred eighteen auricular appendages, removed at valvulotomy from 74 female and 44 male patients between the ages of 11 and 58 years with mitral stenosis, were studied microscopically Special attention was paid to the incidence of nonspecific inflammatory foci in the myocardium, consisting of lymphocytes and large mononuclear cells Such foci were found in 36 specimens (30 5%) and appeared to be associated in most of the cases with thrombosis and auricular fibrillation Aschoff bodies were found in 76 specimens (64 4%) They were observed more frequently in the specimens removed from younger than from older patients There was in general a negative correlation of Aschoff bodies with nonspecific foci, thrombosis, and fibrillation Additional microscopic studies were performed on 22 hearts obtained at autopsy of patients with rheumatic mitral stenosis who had been operated on or not and of patients without heart disease It usually appeared that nonspecific inflammation, if present, was not confined to the left auricular appendage but was also present in other parts of both auricles, even if thrombosis was limited to the left appendage

The author does not agree with the opinion of other workers that nonspecific inflammatory foci in the myocardium are to be regarded as a nonspecific reaction to the presence of an organized thrombus His findings showed that such foci seemed to be more closely related to recent than to organized thrombi, that thrombosis of the auricular appendage may occur without any sign of myocarditis, that these foci appeared to have no preference for the vicinity of a thrombus, and that the inflammatory reaction frequently occurred in other parts of the heart though thrombosis occurred exclusively in the left auricle The author's findings, however, suggest some direct or indirect relation between the various histopathological lesions observed in the auricular appendages on the one hand and auricular fibrillation on the other One could consider that the presence of the lymphocytic infiltration between the muscular fibers, whatever the cause may be, might bring about a disturbance in the stimulus formation resulting in auricular fibrillation Another explanation would be that fibrillation is primary, causing anoxemia of the auricle, and that such anoxemia might bring about an inflammatory reaction

Clinical-Pathologic Study of 76 Cases of Recurrent Graves' Disease, Toxic (Non exophthalmic) Goiter, and Nontoxic Goiter Does a Relation Exist Between Thyroid Hyperplasia and Struma Lymphomatosa? H J Spjut, W D Warren and L V Ackerman Am J Clin Path 27 367-392 (April) 1957 [Baltimore]

Microscopic sections were studied of residual thyroid tissue removed at repeated thyroidectomies in 71 patients and at autopsy in 5 patients The interval between thyroidectomies, or the interval between operation and death, for the entire group averaged 6 years, with a range of from 3 months to 23 years Of the 76 patients, 66 female and 10 male, 35 had Graves' disease, 22 had toxic (nonexophthalmic) goiter, and 19 had nontoxic goiter An attempt to demonstrate convincingly progression of thyroidal hyperplasia to chronic lymphomatous thyroiditis (Hashimoto's disease), chronic thyroiditis, or Riedel's struma, failed The second surgical specimen obtained from a 39-year-old woman with nontoxic goiter showed almost diffuse oxyphilia, lymphoid aggregates with germinal centers, and fibrosis, the first specimen removed 3 years previously had shown a degenerating adenomatous nodule The surrounding parenchyma showed lymphoid follicles with only focal oxyphilia of follicle cells This is the only case in which a diagnosis of chronic lymphomatous thyroiditis was made, it seems likely that, if an early phase of this disease exists, the first specimen has been an example of it and that the second specimen represented the typical appearance of the disease There is no evidence of transition from hyperplasia to lymphomatous goiter

Microscopic changes of severe exhaustion atrophy were observed in the second specimen obtained from 2 patients with Graves' disease, 2 with toxic (nonexophthalmic) goiter and 3 with nontoxic goiter There were foci of oxyphilic cells, lymphoid follicles with germinal centers, lymphoid aggregates, fibrosis that often accentuated the lobular pattern, plasma cells, macrophages, neutrophils, and eosinophils These

7 cases most closely simulated chronic lymphomatous thyroiditis but the outstanding microscopic features which distinguished them from cases of chronic lymphomatous thyroiditis were the different histological stages of involution and usually a lack of diffuse or nearly diffuse oxyphilic change of the follicular epithelium Except for these 7 cases, no distinctly specific microscopic changes that would distinguish the first from the second specimen were noted in the thyroidal remnants of the patients with the 3 types of disease of thyroid gland Lymphoid tissue was seen in thyroid glands of patients with each of the 3 types of thyroid disease, increasing only slightly in the second and third specimens When present in the first specimen it was also present in the second specimen Oxyphilic cells (Hurthle cells) were seen in thyroid glands obtained from patients with each of the 3 disease types and were not correlated with any outstanding alteration in the clinical course The course of exophthalmos could not be predicted from the histological findings The presence of lymphoid follicles in thyroid glands of patients with Graves' disease was associated with a longer interval between operative procedures This was not true for the other 2 disease groups Histological alterations due to therapeutic agents could not be evaluated because most patients had been treated with more than 1 agent, and the doses used and the duration of treatment varied

Relation Between Pyelonephritis and Bacterial Counts in the Urine An Autopsy Study R A MacDonald, H Levitin G K Mallory and E H Kass New England J Med 256 915-922 (May 16) 1957 [Boston]

The clinical diagnosis of pyelonephritis is often overlooked due to the absence of overt clinical manifestations of pyelonephritis in many patients Bacterial counts of the urine have been performed in an attempt to add to the objective methods for determining the presence of infection of the urinary tract Clinicians have long been aware of the fact that clinically evident infections of the urinary tract are accompanied by sufficiently large numbers of bacteria to permit them to be found readily upon microscopic examination of the urinary sediment Similarly, the urines of patients in whom a clinical diagnosis of active pyelonephritis is made have almost invariably been found to contain more than 100,000 bacteria per milliliter The authors performed bacterial counts of the bladder urine in 100 unselected autopsies and correlated them with the pathological data Forty per cent of the urines obtained at autopsy by needle aspiration of the bladder contained more than 100,000 bacteria per milliliter 53% contained no bacteria, and 7% contained between 10 and 10,000 bacteria per milliliter Active pyelonephritis was found in 14 of the 40 patients with 100,000 or more bacteria per milliliter of urine (who were considered to have true bacteriuria) and in but 3 of 60 patients with no or relatively few bacteria Three cases of acute cystitis without pyelonephritis were encountered, all were associated with 100,000 or more bacteria The predominant micro-organism in the urine at autopsy was Aerobacter aerogenes, and there had been little tendency for the organism to disappear with treatment in the patients studied

Antimicrobial therapy was given up to at least 24 hours before death in 60 to 70% of patients, but the beneficial effects of such therapy on the course or frequency of pyelonephritis were limited Healed pyelonephritis occurred in 18% of patients, and the prevalence of this lesion bore no relation to that of bacteriuria A total of 33% of the patients gave evidence of active or healed pyelonephritis Benign prostatic hypertrophy was associated with bacteriuria in only 9 of 26 patients in whom the prostatic lesion was found and active pyelonephritis that was associated with benign hypertrophy occurred only in association with bacteriuria A substantial correlation between bacteriuria, pyelonephritis, and inlying catheterization was demonstrable Clinical diagnosis of active infection of the urinary tract was not made in 70% of patients in whom active pyelonephritis occurred In many of those in whom the diagnosis was not suspected extensive pyelonephritis, sufficient to be a major cause of death, was found Such evidences of infection of the urinary tract as pyuria, azotemia, the presence of granular casts and albuminuria are not reliable indexes of the presence or absence of bacteriuria or of active pyelonephritis No relation between hypertensive heart disease, cardiomegaly, or elevated diastolic pressures and bacteriuria was demonstrable It is concluded that bacterial counts are a reliable means for detecting true bacteriuria and that such bacteriuria is often associated with active infection of the kidneys and other structures of the urinary tract

Neuroblastoma and Related Tumors S Lindsay and I T Chaikoff A M A Arch Path 63 451-459 (May) 1957 [Chicago]

An attempt was made to clarify the interrelations of the tumors of the sympathetic nervous system A series of 236 patients were studied Follow-up examinations were made on 206 and completed on 87 According to histological and cytological criteria the tumors were divided into 3 groups neuroblastoma ganglioneuroblastoma and ganglioneuroma The symptoms manifested by neuroblastoma and ganglioneuroblastoma were essentially alike They were gastrointestinal (49%), respiratory (20%), skeletomuscular (20%), hemic (20%), dermal (8%), and urinary (2%) Only 8% of the 121 patients had no symptoms, the tumor was discovered on physical or x-ray examination Forty per cent of the 109 patients with ganglioneuroma had symptoms referable to the tumor Almost all of these tumors were respiratory and occurred in patients with mediastinal neoplasms All tumors in this group were benign

Congenital neuroblastoma occurs within the first 6 years of life and is fatal in 70% of the cases The ganglioneuroma is a benign tumor and occurs chiefly in adults The ganglioneuroblastoma is a tumor which combines features of both normal ganglionic tissue and neuroblastoma It is likely to be a manifestation of either a lower degree of malignant degeneration of a neurogenic sarcoma or a partial degree of differentiation of a neuroblastoma It is fatal in 69% of the cases A differentiation between these tumors appears justifiable because of the real differences in their biological behavior

BOOK REVIEWS

The Principles and Methods of Physical Diagnosis Correlation of Physical Signs with Certain Physiological and Pathological Changes in Disease By Simon S Leopold M D, Professor of Clinical Medicine, School of Medicine and Graduate School of Medicine, University of Pennsylvania, Philadelphia With chapter on Sounds from the Thorax Acoustic Principles, by S Reid Warren, Jr Sc D Professor of Electrical Engineering, Moore School of Electrical Engineering, University of Pennsylvania Second edition Cloth $9 Pp 537, with 404 illustrations W B Saunders Company, 218 W Washington Sq Philadelphia 5 7 Grape St, Shaftesbury Ave London, W C 2 England, 1957

In this day when there are cries that too much dependence is placed on laboratory diagnosis, a book that stresses what can be learned by questioning and by the use of eyes, ears, and sense of touch is welcome Bedside diagnosis is still an important part of medical practice, and physical diagnosis is something about which the undergraduate or the practitioner can not learn too much Basic understanding plus practice and experience are essential to practice in any field This book, without wasted words, in interesting style, provides the essentials of physical diagnosis Many illustrations, some of them in color, supplement the written word When used with the teacher's lecture or for independent reference, this book should provide much helpful guidance

Retirement A New Outlook for the Individual By Gifford R Hart Cloth $3 95 Pp 179, Harcourt, Brace & Company, 383 Madison Ave, New York 17, 1957

This book apparently is intended to help persons to look forward to retirement and to plan for it Many wait until the day for retirement arrives before they give much thought to it As a result, they often feel lost and unhappy Those who have planned for what can be one of the most enjoyable parts of the span of life can find many things that can keep them busy and happy and perhaps as productive as at any time of their life The author of this book sets forth some interesting philosophy on this subject, and he makes his points with few wasted words and yet with a style of presentation which is interesting and provocative

The Diagnosis and Treatment of Endocrine Disorders in Childhood and Adolescence By Lawson Wilkins M D, Associate Professor of Pediatrics Johns Hopkins University Baltimore Second edition Cloth $17 50 Pp 526, with illustrations Charles C Thomas, Publisher, 301-327 E Lawrence Ave Springfield Ill, Blackwell Scientific Publications, 24-25 Broad St, Oxford, England Ryerson Press, 299 Queen St, W Toronto 2B, Canada, 1957

This is an extensive revision and expansion of the first edition which appeared in 1950 and which has become a classic in pediatric endocrinology In this revision the general pattern of presentation of the subject by means of case reports is followed as in the previous edition, but the theoretical background of the subject has been greatly enlarged so that the present volume may truly be classed as a textbook on pediatric endocrinology Of particular interest are the expanded discussions of sex chromatin, metabolism, the adrenogenital syndrome, the abnormalities in gonadal function, and a newly added chapter on diagnostic methods Differential diagnosis is stressed The author has made notable contributions in this field The book is well written, beautifully illustrated with original pictures of clinical material, and artistically printed This volume should be in the hands of all those engaged or interested in the treatment of endocrine disorders and can be recommended as the most authoritative and up-to-date presentation of the subject available

The Eye in General Practice By C R S Jackson, M A B M, B Ch, Ophthalmic Surgeon Royal Infirmary, Edinburgh Cloth $5 Pp 152 with 25 illustrations E & S Livingstone Ltd, 16 and 17 Teviot Place, Edinburgh 1, Scotland [Williams & Wilkins Company, Mount Royal and Guilford Aves, Baltimore 2] 1957

This little volume, a condensed version of a classic textbook on ophthalmology of 10 years ago, was compiled with the special needs of the general practitioner in mind, and it also is just what is needed for nurses, school teachers, optometrists opticians, and parents, for it gives in clear language the pertinent facts about the eye and its disorders Anatomy, physiology and mathematical optics are barely touched on and then only in terms familiar to lay persons Only the most common of eye diseases are mentioned There is no mention of indications for surgery' nor directions for treatment of any disorder The chapter on diseases of the eye is short but excellent for first aid attendants, school physicians, and country doctors who must be able to care for the simple disorders and leave the complicated cases to the specialist with modern hospital facilities A short chapter on the eye in diseases of other parts discusses briefly but comprehensively the role of the eye in diseases of the cardiovascular system and in intracranial, endocrine, and metabolic disorders and other conditions The last chapter deals with administrative problems of the local British Public Service to the visually handicapped The book is the answer to the inquiry of the high school student who writes, please send me all information about the eyes as I'm writing a paper"

The Specialties in General Practice Edited by Russell L Cecil, M D, and Howard F Conn M D With articles by William A Barnes M D and others Second edition Cloth $16 Pp 780 with 76 illustrations W B Saunders Company, 218 W Washington Sq Philadelphia 5, 7 Grape St Shaftesbury Ave London W C 2 England, 1957

This second edition shows the results of the editors' devoted attention to the audience for which the volume is intended Various specialists have contributed, always with the general practitioner in mind The book is intended as a handy reference book and contains brief descriptions of various problems encountered in the fields in which the general practitioner usually

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These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated

works It is not complete for the various specialties nor is it intended to be, as only the less serious but more commonly encountered problems are discussed The book is amply illustrated and is offered in an easy-to-read style so that the reader, whether he is looking up something in minor surgery, orthopedic surgery, pediatrics, psychiatry, or any other subject, will not feel that he is "wading" through some deeply technical material but rather is receiving practical guidance for quick assimilation

Diagnosis and Treatment of Cardiovascular Disease Volumes 1 and 2 Edited by William D Stroud, M D F A C P Professor of Cardiology, University of Pennsylvania Graduate School of Medicine, Philadelphia, and Morris W Stroud III M D, Associate Professor of Medicine Western Reserve University, Cleveland Contributors Edgar V Allen, M D, and others [Fifth edition] Cloth, loose leaf $35 Pp 719, 1001-1702, with illustrations F A Davis Company 1914-16 Cherry St, Philadelphia 3, 1957

This loose-leaf presentation is edited by well-known cardiologists who have received the help of about 60 contributors, each an expert in his own field The present edition represents an attempt to bring the volumes up to date, the loose-leaf binding being used to permit continuous revision This is an excellent book for the student or practitioner, whether he be in general practice or a specialty The book is amply illustrated, has been prepared with a pleasing type, and has a complete index Of great interest to those who like to peruse the literature will be the lists of references at the end of many of the chapters, some are extremely complete

Basic Nutrition By E W McHenry, M A, Ph D, F R S Professor of Public Health Nutrition, School of Hygiene, University of Toronto, Toronto Cloth $5 Pp 389, with 9 illustrations J B Lippincott Company 227-231 S Sixth St, Philadelphia 5 2083 Guy St, Montreal, Canada, Pitman Medical Publishing Company Ltd, 45 New Oxford St, London W C 1, England 1957

More useful information is contained in this book than is generally found in similar textbooks prepared for university or nursing students This usefulness stems, no doubt, from the intent of the author to avoid generalities The material has been prepared with the basic assumption that human requirements for nutrients do not vary with race or nationality, when treating differences in nutrient requirements in health and diseases, one must also consider the geographical region and environment This book was prepared to enable the reader to adapt the specific information given to his own particular circumstances This approach should make the book a valuable reference for those who have either a casual or working relationship with nutrition It is a well-documented and up-to-date book, but, in addition to the basic-seven food groups, reference might well have been made to the concept of four groups recently introduced in this country by the United States Department of Agriculture

After a thorough introduction to the utilization, requirements, and sources of the important nutrients, the author discusses the practical application of the knowledge The physician concerned with nutrition should be especially interested in several of the later chapters There is a concise chapter on special diets followed by one on the evaluation of nutritional conditions A discussion of studies of food intake, determination of nutritional status, and biochemical methods for the appraisal of nutritional status will be found in the latter chapter The final chapter, which has world-wide significance, is concerned with the causes and prevention of malnutrition This chapter and a table of the composition of foods conclude this fine work on basic nutrition

Clinical Roentgenology of the Digestive Tract By Maurice Feldman M D, Assistant Professor of Gastroenterology, University of Maryland, Baltimore Fourth edition Cloth $15 Pp 776 with 728 illustrations Williams & Wilkins Company, Mount Royal and Guilford Aves, Baltimore 2, 1957

The revision of this standard reference in roentgenology of the digestive tract has been extensive It incorporates the newer developments in this field since the last edition, eight years ago All of the digestive tract, its associated organs and its environment are discussed The mode of presentation is that established in the preceding edition Not only are the roentgenologic findings emphasized but the pathological, surgical, and clinical aspects are also considered Numerous rare conditions, information about which is obtained with difficulty from other sources, are described Each subchapter is followed by a bibliography Statistical information is available for most of the disease processes Only the essentials regarding methods are given The illustrations, though not numerous, should be adequate Double column format is used This book should be useful to the internist for whom it was primarily written Roentgenologists will find the comprehensive nature of the material a valuable addition to the reference library This book, in view of the central role of roentgenology in the diagnosis of the gastrointestinal diseases, may well be recommended to every physician who is interested in this field

The Ciba Collection of Medical Illustrations Volume 3 A Compilation of Paintings on the Normal and Pathologic Anatomy of the Digestive System Part III Liver, Biliary Tract and Pancreas Prepared by Frank H Netter, M D Edited by Ernst Oppenheimer, M D Cloth $10 50 Pp 165, with 133 color plates Ciba Pharmaceutical Products, Inc, 556 Morris Ave, Summit N J, 1957

This volume represents a compilation of paintings and colored drawings of the normal and pathological anatomy of the organs mentioned On each page, next to the illustration, is a concise explanation Chapter subjects include normal anatomy, physiology and pathophysiology, hepatic and pancreatic function tests, diseases of the liver, diseases of the gallbladder and bile ducts, and diseases of the pancreas The text and illustrations have been prepared in consultation with Oscar Bodansky, Eugene Clifton, Donald Kozoll, Hans Popper, and Victor M Sborov These outstanding authorities add to the stature of the book The illustrations are clear, instructive, and well printed They cover, in a relatively comprehensive fashion, the subjects involved, although illustrations of this sort may depart, in certain instances, from the situation observed in photographs This book should serve a useful purpose, particularly as a teaching medium and also as an instructive volume, for anyone interested in the field

QUERIES AND MINOR NOTES

TREATMENT OF CHRONIC VARICOSE ULCERS

To the Editor —*Kindly comment on the treatment of chronic, recurring varicose ulcers by using plasmin, a blood plasma enzyme Is this similar to preparations of trypsin?*

E G Hubin, M D Sandstone, Minn

Answer —When a varicose ulcer fails to heal or keeps recurring, a variety of factors need to be considered Most frequently one finds a postphlebitic ulcer, which rides on an incompetent perforator vein and is surrounded, nay strangled, by a fibrous ring and lymphatic stasis When such ulcers are widely excised, the offending perforators are ligated flush with the deep fascia, and a three-fourths-thickness skin graft heals well and firmly but necessitates at least three weeks of bed rest Additional venous segments creating congestion may need to be stripped Chronic leg ulcers may also fail to heal because of arteriolar sclerosis with or without hypertension Sympathectomy may help, but naturally some metabolic disorders, such as diabetes or lipemia, need to be controlled

When it comes to local treatment, necrotic bases may be digested with streptokinase, trypsin, or plasmin The latter, frequently called fibrinolysin, is the fibrinolytic enzyme of the blood, which, when activated, does dissolve clots and necrotic tissue In the gangrenous heels of diabetics, enzymatic dédridement does yeoman's service If, however, the underlying cause of the ulcer is a high postural venous pressure, the skin will break down again until the incompetent perforators are eliminated

PENILE DEFORMITY AFTER TRANSURETHRAL PROSTATECTOMY

To the Editor —*A 56-year-old man had a transurethral prostatectomy two years ago, followed by angulation deformity of the proximal third of the penis eight months later He received a number of corticotropin (ACTH) injections, with no benefit British physicians are said to have some gadgets to straighten the penis so that a patient can have coitus What can be done now?*

S L Betagole, M D, Cincinnati

Answer —The deformity described which occurred after transurethral prostatectomy usually is caused either by postoperative stricture of the urethra or by the development of plaques in the corpora cavernosa known as induration of the corpora cavernosa (Peyronie's disease) If a no 24 sound passes through the urethra easily, the stricture, of course, is eliminated Treatment for this disease often is unsuccessful External application of radium probably gives the best results One would question the efficaciousness of any gadget that would straighten out penile deformity

RECURRING INFECTIOUS THROMBOPHLEBITIS

To the Editor —*A woman, aged 53 years, recently developed a slight pain in the right calf This gradually grew worse and became painful on walking Three weeks after the onset she developed chills, her temperature was 101 F (38 4 C), and there was severe pain on the right side of the lower chest over the liver She had no cough She was hospitalized and the right leg elevated Treatment consisted of hot applications to the leg and the administration of Achromycin (by mouth), heparin, and Dicumarol X-ray of the chest showed involvement of the right lower lobe, and there was a pleural-like friction sound on the right side of the lower chest After two weeks of treatment the symptoms in the lung disappeared and the pain in the leg was not so severe, the temperature was normal Two days later the patient was allowed to sit up for an hour in the morning and the afternoon and was made to walk a few times about the room Two days after she was up and walked she had a relapse, with severe pain in the leg and inguinal region on the right side, nausea, chills, temperature of 101 F, and a feeling of pressure over the urinary bladder with frequent urination (every half hour) She was put to bed for three weeks, the foot of the bed being elevated and hot applications being applied to the right leg At the end of that period she was completely without symptoms and was discharged from the hospital, with instructions to stay in bed most of the time One week after the patient went home she got up to entertain a friend She stayed up several hours and walked up and down the stairway several times The next day she had a relapse, with severe pain over the bladder, frequent urination, pain in the leg, and a temperature of 100 F After she stayed in bed four to five days, the symptoms disappeared again Now, if she stays up very long, she develops pains over the bladder and has to urinate frequently At present she wears elastic stockings when she gets up As long as she stays in bed, she is asymptomatic She takes Dicumarol, 50 mg every other day The right leg is still swollen Please explain the pain and pressure feeling over the bladder with frequent urination How long will it take for the swelling in the leg to disappear, and when will she be able to do any kind of work and be free of the above symptoms? Is it advisable to discontinue the administration of Dicumarol? At present, the prothrombin time is 20% of normal Please suggest another treatment for this condition*

D J Louis, M D, Chicago

Answer —In this case one is dealing with a patient who presumably had three episodes of recurring infectious thrombophlebitis With the first attack, she had a pulmonary infarction Subsequently, there was a history of recurring bouts of chills and fever when the patient resumed activity This also was associated with pains in the suprapubic region and frequent urination

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The answers here published have been prepared by competent authorities They do not however, represent the opinions of any medical or other organization unless specifically so stated in the reply Anonymous communications and queries on postal cards cannot be answered Every letter must contain the writer s name and address, but these will be omitted on request

The frequency of urination and the discomfort in the suprapubic region may not necessarily be due to the thrombophlebitis It is quite possible that the patient has some infection in the urinary tract This may be in the bladder itself or in the kidneys The possibility of a pyelitis or pyelocystitis cannot be excluded until further studies are carried out, such as examination of the urine sediment and culture and cystoscopic examination, in many cases, a pyelogram may be helpful The repeated bouts of chills and fever could very well be due to some infectious condition of the urinary tract If any of the findings are present, then broad-spectrum antibiotics, such as Furadantin, 50 mg four times a day after meals and at bedtime, or Gantrisin may be helpful

The swelling of the leg is most likely due to the recurring infectious thrombophlebitis, and this patient may be developing a chronic phlebitic syndrome An elastic support should be recommended, and its use should be continued for an indefinite period, particularly when the patient is on her feet and walking about The swelling may continue for some length of time However, it may be controlled if intensive overall treatment is instituted This consultant is partial to giving Mecholyl iontophoresis for a series of 10 treatments and use of the oscillating bed, if available The patient should also continue receiving vasodilators, such as Priscoline, 25 to 50 mg three times a day before meals, or Arlidin, 6 mg three times a day before meals and papaverine, 1 or 1½ grains (60 or 100 mg) four times a day after meals and at bedtime If the condition persists, it is suggested that one of the enzyme preparations, either Parenzyme or Chymar, 5 Gm daily for a series of 10 treatments, be injected intramuscularly The patient should be advised to sleep with the feet elevated, and smoking obviously is interdicted The patient is permitted to resume work after three or four weeks of therapy and two weeks of convalescence

The administration of Dicumarol is recommended for three to six months, depending upon the progress of the patient Should the episodes of chills and fever be proved to come from some bladder infection, then the treatment may be discontinued, however, if it is decided that these symptoms are definitely recurring phlebitis attacks, then it should be continued for at least three months or longer, if necessary Needless to say, the dosage of Dicumarol will be guided by the prothrombin time, which should be determined once a week or every 10 days In hospital patients, 20% levels are optimal, however, when a patient is ambulant or is not under daily supervision, then levels of 30% or even 40% would be satisfactory In the high levels, 50-mg doses are recommended In levels in the 20s, 25 mg is preferred in order to avoid side-effects

As for further treatment, this has practically been answered in the above paragraphs antibiotic therapy, particularly directed toward any possible infection, either in the bladder or elsewhere, treatment of the vein disorder with anticoagulants, elevation of the foot, and an elastic bandage or stocking for support, and injection of an enzyme preparation intramuscularly, if indicated If the condition is not controlled, should pulmonary infarction occur, or if the patient still has episodes of recurrence, then the advisability of surgery should be considered, the veins in the thigh being exposed for ligation and resection

GLUCOSE TOLERANCE TEST AFTER GASTRECTOMY

To the Editor —*A 28-year-old man had a fasting blood sugar level of 103 mg per 100 cc A glucose-tolerance test made later in March, 1957, was as follows*

Time a m	*Sugar in Blood, Mg /100 Cc*	*Sugar in Urine*
8 (fasting)	*107*	*None*
8 35	*224*	*Faint trace*
9 05	*325*	*3 3%*
10 05	*157*	*1 0%*
11 05	*58*	*None*

There is a history of duodenal ulcer for the past 10 years, of gastrectomy in 1953, and of acute pancreatitis two years prior to writing Is this condition diabetes mellitus, or can it be due to chronic pancreatitis? In the question of treatment, is a high-protein, fat, and restricted sugar diet indicated for each meal? Should further diagnostic procedures be carried out?

Norman Schaefer, M D , Bronx, N Y

This inquiry has been referred to two consultants, whose respective replies follow —Ed

Answer —This abnormal glucose-tolerance test might well be due to the previous gastrectomy, with rapid emptying of the stomach and accelerated absorption of glucose from the small intestine It would be advisable to perform an intravenous glucose-tolerance test in order to eliminate the factor of absorption One third gram of glucose per kilogram of standard body weight is injected as a 50% solution intravenously over a period of two minutes Specimens for testing are taken from the opposite arm In normal individuals, the blood sugar level returns to normal in 60 to 90 minutes If the intravenous test should prove to be abnormal in this case, it would probably mean diabetes mellitus, but the test would not distinguish between spontaneous diabetes and that due to pancreatitis If the intravenous glucose-tolerance test should reveal diabetes, restriction of dietary carbohydrate would be indicated, provided that examination of the feces did not show defective absorption of fat and protein, which might come about as a result of pancreatic deficiency If such deficiency were found to exist, the restriction of carbohydrate would have to be modified so as not to present the intestine with excessive amounts of protein and fat

Answer —Interpretation of such a glucose-tolerance curve as is presented in this query is made difficult by the history of gastrectomy and acute pancreatitis It is well known that, in some patients, with or without the dumping syndrome, after gastrectomy, the blood sugar level may rise rapidly after the taking of glucose to a point above normal and then return to normal or even subnormal levels at the end of two hours This has usually been interpreted as due to the rapid absorption of glucose because of the rapid delivery of glucose into the duodenum and a corresponding stimulation of insulin production with the later hypoglycemia It would be of value, therefore, in the patient in question to carry out an intravenous glucose-tolerance test. Glucose is administered by vein at the rate of 0.5 Gm. per kilogram of body weight per one-half hour. It may be given as a 20% solution in sterile water or saline solution. The blood sugar level is determined in the fasting state and again at 30, 60, 90, 120, and 180 minutes. The blood sugar level should be returned to normal after 90 minutes. In a diabetic the blood sugar level would remain elevated.

The glucose-tolerance test, as given, may be interpreted as definitely abnormal, since the peak of the curve is far above normal and there is no return to the normal fasting level at the end of two hours. The fact that the blood sugar level at the end of three hours has reached 58 mg. per 100 cc. is of some interest. If the blood sugar level is a "true" glucose value, then 58 mg. is not surprisingly low. On the other hand, if the Folin-Wu method has been employed and the blood sugar level is not a "true' glucose value, then 58 mg. is definitely low. One wonders whether the patient has ever had symptoms suggesting hypoglycemia and whether the patient might have functional hypoglycemia. If this were proved, then a five-meal schedule might be needed.

If an intravenous glucose-tolerance test is confirmatory, the diagnosis of true diabetes mellitus is necessary, possibly on the basis of the preceding pancreatitis. Treatment with a planned diet is indicated. The total calories should be planned for the patient's age, weight, and activity. In general, a diet providing for carbohydrate (150-200 Gm.), protein (80-120 Gm.) and fat (70-100 Gm.) might be employed. In a patient 28 years of age, insulin should be used, unless the patient can be kept under constant observation and can be shown to be free from glycosuria and hyperglycemia on the dietary regimen.

TREATMENT OF CORNEAL DYSTROPHY

To the Editor:—*A patient, 61 years of age, has had corneal dystrophy in his left eye for three years, with progressive worsening of vision. Recently he was told that this condition was developing in his right eye. His work places a heavy load on his vision, and in addition, he must do a considerable amount of automobile driving. What is the latest information on the treatment of corneal dystrophy?*

M.D., Pennsylvania.

This inquiry has been referred to two consultants, whose respective replies follow.—Ed.

Answer.—Dr. F. W. Stocker has reported the use of the inhibitor of carbonic anhydrase, acetazolamide (Diamox), for the endothelial type of corneal dystrophy of the Fuchs type, which this would seem to be. Relatively small amounts of acetazolamide are given over a long period of time, and a clearing of the media is claimed to occur indefinitely as long as the therapy is maintained. A second treatment, which has given good results in many cases, is the transplantation of the cornea. It is important that this transplantation be done as early as is feasible, so that the least amount of destruction of the corneal stroma will be permitted to occur. The latest histological studies show that corneal dystrophy is due to hypertrophic changes in the nerves in the original cornea, and it is quite possible that the steroids, such as prednisone, would help in clearing the opacities caused by the dystrophy. It must be remembered that one is dealing with a destructive lesion of the cornea of unknown etiology, and, therefore, much time must be allowed before any changes can be seen to take place.

Answer.—There are many types of corneal dystrophies, the medical treatment of which is invariably unsatisfactory. There is no known medical treatment that will alter the progress of the more commonly seen corneal dystrophies, such as the nodular dystrophy of Groenouw, the lattice-like dystrophy of Haab-Dimmer, or the spotted, familial type of dystrophy of Fleisher-Fehr. The treatment of choice for these dystrophies is surgical when vision becomes so impaired as to warrant a penetrating corneal transplant. Attempts have been made to treat primary lipid dystrophy medically but with questionable success. In this regard, roentgen irradiation of the cornea has been attempted to arrest the progress of the fatty lesion, and beta-irradiation has been effective in reducing the vascularization and arresting the secondary fatty infiltration. Surgical excision of the corneal nodules seen in Salzmann's nodular corneal dystrophy has been attempted with success by a lamellar or partial penetrating corneal excision with or without a transplant. Endothelial-epithelial dystrophies are usually not amenable to medical treatment and may ultimately require corneal transplantation with a graft large enough to take to healthy endothelium. Advanced epithelial dystrophy accompanied by severe pain has been relieved by a Denig graft with buccal mucous membrane. Resection of the greater superficial petrosal nerve to interrupt the efferent arc of the tearing reflex causes a permanent hypertonicity of the precorneal film by lessening the serous element of the tears. The precorneal film cannot become diluted by the excess of tears usually present in this condition. Deep roentgen therapy to the lacrimal gland has been advocated to alter the secretion of tears in patients unable to withstand surgery. The treatment of marginal dystrophy is usually directed toward correction of astigmatism. Cauterization or excision of the ectatic cornea, with reinforcement of the wound by a conjunctival flap, may be required in severe cases.

RHYTIDECTOMY

To the Editor:—*Is there an effective operation for face lifting so that the heaviness that appears just above and under the cheek bone will disappear? Is such a procedure difficult? Does the condition recur after surgery, and, if so after about what interval of time?*

M.D., Illinois.

Answer.—Rhytidectomy, often referred to as face lifting, is a well-established, effective surgical procedure. When performed for removal of redundant skin of the face and neck, it produces very satisfactory improvement in the appearance but should be done conservatively to prevent a pulled expression to the face. It is a lengthy procedure, when done correctly, requiring three to four hours on the operating table. Since wide undermining of the skin is required, this operation should not be attempted by one who is not thoroughly familiar with the anatomy of the face and neck or by one who is not thoroughly trained in plastic surgical procedures.

It is thought that relaxation of the skin during the aging period is due primarily to a loss of tone in the elastic fibers of the dermis with the muscles of expression playing a secondary role. Although the gain from the surgery is permanent it does not affect the aging process and eventually the skin will again become redundant. The rapidity of the aging process in the skin varies greatly among individuals and therefore some will achieve more lasting improvement than others. The operation may be repeated as often as indicated, the average interval of time being five to seven years.

X-RAY EXPOSURE AND POLYCYTHEMIA

To the Editor.—*A male x-ray technician aged 31 years, has worked in a diagnostic x-ray department of a general hospital for 10 years. Usual safety precautions and intelligent supervision under radiologists have been in force but film badge service has only recently been started and results from this are not yet available. The technician has no complaints whatsoever and physical examination by an internist indicates no abnormality. However, routine blood studies in 1954 and 1956 showed hemoglobin levels of 91% and 100% (16 Gm. per 100 cc.). The white blood cell count was 9,050 and 10,000 per cubic millimeter at these times. In March 1957 the white blood cell count was 9,250 per cubic millimeter and the hemoglobin level was 109% (17.4 Gm. per 100 cc.). A repeat study a week later showed 10,750 white blood cells per cubic millimeter and identical hemoglobin level with a hematocrit of 48%. Differential count showed eosinophils 1%, stab forms 7%, mature neutrophils, 54% and lymphocytes 38%. A week later in an internist's office where a freshly calibrated instrument was used the hemoglobin level was reported as 16.35 Gm. per 100 cc. and the hematocrit as 42%. Should an early polycythemia vera be suspected with these findings? Are further studies indicated? Should the blood studies be done monthly for a period before attempting marrow study?*

Clarence P. Chrest, M.D., Kalamazoo, Mich.

Answer.—The data presented do not indicate that this patient has any evidence of polycythemia. The two hematocrit values are both within normal limits as are the rest of the details of the patient's blood cell count. There is no evidence that x-ray exposure results in polycythemia vera. Patients with polycythemia vera may develop leukemia, and some workers in the field believe that exposure or treatment by irradiation will result in a higher incidence of leukemia in patients with polycythemia vera than treatment by phlebotomies. However, there is no good proof of this view. Certainly in the case described there is no indication that this patient has polycythemia vera, and, moreover, as mentioned above, there is certainly no evidence that there is any relationship between irradiation and the occurrence of this disease.

MALATHION INTOXICATION

To the Editor.—*A 57-year-old woman has a peculiar mottling of both lungs and suffers from periodic respiratory infections which respond to penicillin. She has been a grower of African violets and has several hundred plants in her cellar on which she uses a toxic spray. Could the mottling of the lungs be due to inhaling this toxic substance whose generic name is malathion? Is there any record of toxic effects from constantly inhaling malathion in an enclosed space such as a cellar?*

J. Elmer O'Brien, M.D., Erie, Pa.

Answer.—Malathion is an organic phosphorus insecticide used in the control of certain pests of fruits, vegetables and ornamentals. As a public health pesticide, it has been employed for the control of house flies and as a mosquito larvicide. The usual cholinergic signs and symptoms are characteristic of malathion intoxication. In addition acute muscle weakness has been noted in chickens given large subcutaneous doses of the compound. A detailed discussion of this syndrome is given by Durham, Gaines and Hayes (*A. M. A. Arch. Indust. Health* 13:326-330 [April] 1956). The toxicity of malathion to experimental animals is low as compared with that of many other organic phosphorus insecticides. Based on studies with experimental animals, both the acute oral and the dermal toxicities of malathion are less than those of DDT. No established cases of human poisoning from malathion are known that parallel the circumstances described in the query. No information is available that mottling of the lungs has been associated with inhalation of this or related materials.

FISSURING OF NAILS

To the Editor.—*Please give advice regarding fissuring and splintering of the nails. Is gelatin or tincture of white iodine of any value?*

Sidney Schreider, M.D., Berwyn, Ill.

Answer.—Fissuring and splintering of the nails is sometimes a syndrome per se, other times it is related to various skin diseases and to contacts. In the last named instance it is most essential to eliminate any contacts responsible for keeping the nails in this condition. The syndrome per se sometimes occurs in psoriasis. In cases in which the physical examination was negative (and no doubt the findings of the blood chemistries [uric acid] were normal), gelatin has been used by a number of observers. The latest such report by Rosenberg and Oster indicates that 26 out of 3 patients improved very strikingly. Five cases were definitely associated with psoriasis. Gelatin, of course is an extract of beef and contains amino acids and a goodly percentage of glycine which is capable of increasing peripheral temperature. The results from the use of gelatin have not been uniform among observers. Yet in some cases it has definitely been of help although it has not altered the primary condition, such as psoriasis. Tincture of white iodine has also been used by lay people, but from the scientific point of view it is of no particular merit, having very feeble bacteriostatic and fungistatic properties.

« Washington News »

FDA and FTC Problems with Reducing Remedies • •
Awards for Medical Research and Sewage Plants • •
U S Releases First Vaccine for Asian Influenza • •
VA Increases Fees in Home-Town Care Program • •

PROBLEMS IN REGULATING REDUCING PILLS

Because of an adverse federal court decision, two government regulating agencies are finding it difficult to proceed against misleading advertising for weight-reducing products when the products themselves cannot be shown to be dangerous

Problems of the Food and Drug Administration and the Federal Trade Commission were related to a subcommittee of the House Government Operations Committee at the conclusion of a week's hearings on weight-reducing products and other medicine and devices that are sold under exaggerated claims

Earlier, medical witnesses agreed that the weight reducers in themselves could not result in loss of pounds, as claimed in ads, and that in some cases they were an actual health hazard to certain persons Dr Leon Hirsh of Cincinnati, who has written and done research on obesity, explained that those containing phenylpropanolamine are among the pills presenting potential dangers, as they could cause coronary attacks or cerebral hemorrhage in some people

George P Larrick, FDA commissioner, said the agency could act if the product is misbranded either by its label or by material accompanying it He said the last action against a weight reducer containing a dangerous ingredient was concluded successfully 13 years ago and that now "the dangerous type of reducing preparation has all but disappeared completely from the scene"

However, the government was unsuccessful in court action against a preparation containing candy and vitamins, which the agency claimed was misbranded in that it was advertised as effective, in itself, in causing loss of weight The judge decided the advertising claims were not unduly exaggerated, as consumption of these pills before a meal would cause some loss of appetite

Because of this and a similar adverse decision, Mr Larrick said, "the Food and Drug Administration was forced to conclude that regulatory action in this field must be very carefully selected and that it would not be feasible to bring cases where the labeling claims were of a qualified nature However, we are preparing to proceed against the promoters of an article falsely represented for weight reduction we are proceeding with caution in the selection of cases and the development of convincing evidence"

Sigurd Anderson, head of the Federal Trade Commission, which can act against any false or misleading advertising (FDA is restricted to labeling and accompanying material), told the commission that his agency's activities also are restricted by the adverse decisions 'Our regulation of the products sold as appetite depressants has been limited largely to claims implying that the product itself has an effect on metabolism, claims of weight loss in definite and predetermined amounts, or special claims such as official government approval of the product"

He had one other complaint The FTC had asked $33,500 more for scientific investigations and testing during the current fiscal year, but it was cut from the budget by Congress

The subcommittee had no plans to urge remedial legislation before adjournment, but will make its recommendations to the full committee when Congress reconvenes in January There is a possibility that Chairman John Blatnik (D, Minn) will investigate tranquilizers some time in the fall

COMMITTEE CONCLUDES HEARINGS ON AUTO SAFETY BELTS

When Congress reconvenes in January it will have before it the findings of a special House subcommittee on the controversial question of whether the federal government should move into the picture by setting standards for auto safety belts and requiring that all cars be equipped with them

The traffic safety subcommittee of the House Interstate and Foreign Commerce Committee conducted almost two weeks of hearings on the subject, taking testimony from physicians, independent researchers, spokesmen for the federal government, and industry representatives With one exception they all endorsed in general the use of safety belts, but did not agree on how the public could best be induced to demand and make use of the protection Industry spokesmen, for example, said the wisest course to follow would be a public educational campaign, but they did not think the manufacturers should take the lead in this

Representatives of five big manufacturers—Ford, General Motors, Chrysler, American Motors, and Studebaker-Packard—testified at length on car construction and technicalities of installation of seat belts The Ford spokesman said he was certain that universal use of safety belts would reduce traffic fatalities by 50%, and a representative of the Air Force quoted figures to show that auto accidents caused more injuries to Air Force personnel than any other type of accidents and that only airplane crashes caused more fatalities Col John Stapp of the Air Force aeromedical research laboratory said he personally favored belts and thought they might eventually be required equipment on Air Force ground vehicles

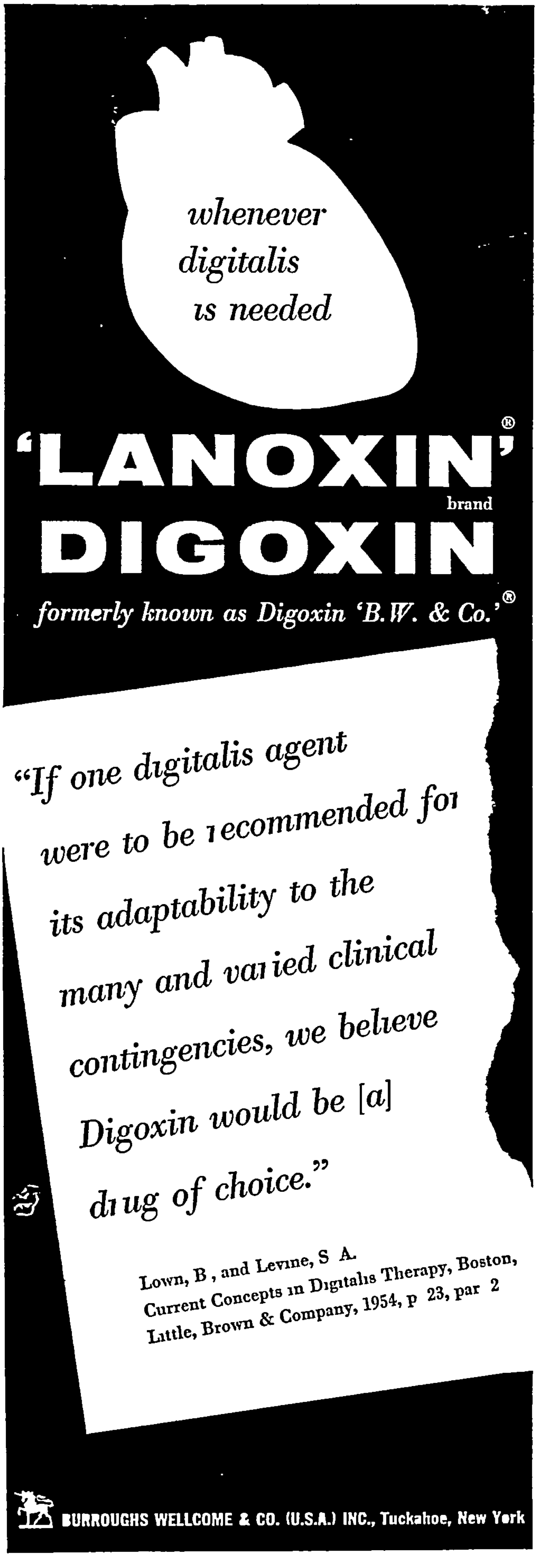
J B Hansen, head of the General Services Administration's motor equipment division, while granting that the value of belts had been demonstrated, said auto riders, unless under orders, 'just won't or don't like to use belts,' and that some of the belts are of inferior quality and dubious reliability

The only witness who flatly opposed the belts was Andrew J White, director of a private motor vehicle research organization If it is possible to select the type of accident you are going to be involved in, wear a seat belt, if not, do not wear one as it may be the cause of death or serious injury"

Mr White argued that the government and the industry should attack the whole problem of passenger safety, not just one facet of it He called for a 'massive plan of action" to bring the entire structure of the cars in line with recognized safety principles"

(Continued on next page)

From the Washington Office of the American Medical Association



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Lown, B, and Levine, S A.
Current Concepts in Digitalis Therapy, Boston,
Little, Brown & Company, 1954, p 23, par 2

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Washington News—Continued

Dr R Arnold Griswold, representing the American College of Surgeons, directly challenged Mr White's testimony He said the enforcement of adequate standards would correct the problem of faulty or inadequate belts, and he cited statistics that indicated less than 1% of auto deaths are due to drowning or fire, situations where it had been argued the belts actually are a handicap

"It is our opinion,' he testified, "that an occupant protected by a seat belt would more likely be conscious and able to extricate himself from a burning or submerged vehicle than would an unprotected occupant who is likely to be unconscious'

FIRST ASIAN INFLUENZA VACCINE RELEASED FOR USE

Only two and one-half months after pharmaceutical houses were given prototypes of Asian influenza virus and asked to attempt to develop a vaccine, the Public Health Service was able to announce release of the first two lots of the vaccine

The first release totaled 502,000 doses, 320,000 cc from the National Drug Company and 182,000 from the Lederle Laboratories Also at work on the vaccine, and expected to have shipments ready shortly, are Eli Lilly & Company, Merck, Sharp & Dohme, Parke, Davis & Company, and Pitman-Moore Company Their first lots now are under review and test

It is understood that somewhat less than half of this release of vaccine will be turned over to military authorities, the rest being distributed through normal channels to physicians, hospitals, clinics, and other health facilities

The Public Health Service has called in members of the State and Territorial Health Officers Association and other health groups, including the American Medical Association, for a special meeting on Aug 27-28 An earlier meeting, attended by representatives of 13 organizations in the health fields, endorsed an A M A recommendation that local groups in the health professions be formed to handle epidemic problems

PHS ALLOCATES MOST OF FUNDS FOR RESEARCH EXPANSION

The Public Health Service already has allocated $26,500,000 of the 30 million dollars appropriated by Congress for the second year of a three-year program to expand health research facilities The money became available on July 1

In announcing the grants, Surgeon General Burney said, 'It is apparent that this program is meeting a nationwide need for assistance in the construction of health research facilities Funds may be used for building and equipment

The money goes out in 100 grants to 77 institutions, including hospitals, universities, research institutes, and schools of medicine, dentistry, and public health They must match the federal money on a 50 50 basis

Since start of the program on July 1, 1956, a total of 275 formal applications and 81 supplemental requests totaling 114 million dollars have been received, and in addition 83 institutions have indicated their intention to apply for 38 million dollars

The following institutions receive grants of half a million dollars or more out of the new allocations University of California at Los Angeles, $600,000 and $1,200,000, University of Connecticut, $650,000, California State Deparment of Public Health, $600,000, University of Georgia, $631,037, Chicago Medical

School, 1 million dollars, University of Illinois, $750,000, Purdue University, $548,197, Tulane University School of Medicine, $1,500,000, University of Boston School of Medicine, $1 500,000, Harvard University, $1,026,000, University of Michigan, $600,000, Wayne State University, Detroit, $500,000, University of Minnesota, $892,821 Washington University, St Louis, Mo , $743,238, Memorial Center for Cancer and Allied Diseases, New York City, $1,060,000 Western Reserve University and University Hospital, Cleveland, $1,175,286 University of Pennsylvania, $1,200,000 Women's Medical College of Pennsylvania, Philadelphia, $500,000

PHS also has allocated the major portion of money available for this year in another two-year-old program, that for grants to communities to help them build sewage treatment plants A total of almost 38 million dollars has been awarded out of 50 million dollars voted for Congress for the current fiscal year, which started on July 1

To the federal money, communities added almost 129 million dollars, indicating total expenditure of 167 million dollars on the projects The average U S grant was about $85,000, and the average community receiving a grant had a population of 22,300

VA INCREASING FEES UNDER HOME-TOWN CARE PROGRAM

The Veterans Administration is increasing fees to physicians under its home-town care program and has allocated another half-million dollars to meet the additional costs in the present fiscal year The VA estimates that the total program will cost about $8,300,000 in the year ending July 1, 1958

New fee schedules have been worked out with medical societies or intermediary organizations in California, Colorado, Connecticut Indiana, Maine, Massachusetts, New Jersey, Ohio, Oregon, Virginia, and Washington, and new arrangements are under negotiation for Arkansas, Florida, Georgia Idaho, Pennsylvania, South Dakota, Alaska and Hawaii

Catalog 5 charges have been revised upward in the 15 states, the District of Columbia, and Puerto Rico, where the VA has no contracts for home-town physician service Amounts of increases and types of services covered by the fees vary from state to state

NEW RESEARCH PROJECT ON THE AGING

An award of $306,922 for research on aging has been made by the Public Health Service to Duke University at Durham, N C , thus launching, in the words of the PHS, a new research approach to the health problems of older persons The grant came from funds of the National Institute of Mental Health and the National Heart Institute, upon recommendation of the two advisory councils to the institutes

Surgeon General Burney said the program is aimed at encouraging establishment of research centers in which departments of universities along with health and related agencies in the community will cooperate in studying various aspects of aging The PHS program is being directed by the Center for Research on Aging at the National Institutes of Health Organized last October the center is under the direction of Dr G Halsey Hunt

At Duke the award will be used to aid in (1) development of a Center for Aging Research based on a university-wide effort, (2) support of fundamental research concerned with health problems of aging, (3) training investigators interested in problems of aging, and (4) fostering a regional resource for dissemination of scientific knowledge in the field of aging

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SOCIETY	PRESIDENT	SECRETARY	MEETING
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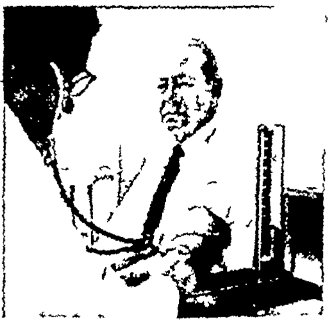
Public Health Association	John W Knutson Washington D C	R M Atwater 1790 Broadway New York 19	Cleveland Nov 11 15
Radium Society	Ralph T Ogden Hartford 14 Conn	Theodore R Miller 139 East 36th St New York 16	Hollywood Fla Mar 2 20
Rheumatism Assn	William D Robinson Ann Arbor Mich	Edward F Hartung 580 Park Ave New York 21	
Roentgen Ray Society	W Edward Chamberlain Philadelphia 40	Barton R Young Germantown Hosp Philadelphia 44	Washington D C Oct 1 4
School Health Assn	Fred V Hein Chicago	A O DeWeese 515 E. Main St Kent Ohio	Cleveland Nov 16
Society for Clinical Investigation	Richard V Ebert Little Rock Ark	S J Farber 550 1st Av New York 16	Atlantic City N J May 5
Society for Experimental Pathology	Emory Warner Iowa City Ia	Cyrus C Erickson 858 Madison Ave Memphis 3 Tenn	Philadelphia Apr 14 18
Society for Pharm & Ex Ther	Otto Krayer Boston	Harold Hodge Univ of Rochester Rochester 20 N Y	Philadelphia Apr 13 18
Society for the Study of Sterility	Charles M McLane New York 29	H H Thomas 920 S 19th St Birmingham Ala	Los Angeles Apr 18 20
Society of Anesthesiologists	Irving M Pallin Brooklyn N Y	J F Remlinger Jr 188 W Randolph St Chicago 1	Los Angeles Oct 14 19
Society of Biological Chemists	John T Edsall Cambridge Mass	Philip Handler Duke University Durham N C	Philadelphia Apr 13 18
Society of Clinical Pathologists	John L Goforth Dallas Texas	C G Culbertson 1040 W Michigan St Indianapolis 6	New Orleans Sept 29 Oct 4
Society of Maxillofacial Surgeons	Douglas B Parker New Orleans	John A Drummond 1414 Drummond St Montreal 25 Can	
Society of Tropical Medicine & Hygiene	Justin M Andrews Washington D C	R B Hill 355 St Gaudens Rd Miami 33 Fla	Philadelphia Oct 30 Nov 2
Surgical Assn	John H Mulholland New York 16	R Kennedy Gilchrist 29 E Madison St Chicago 3	New York Apr 16 18
Therapeutic Society	Arthur C De Graff New York	O B Hunter Jr 915 19th St N W Washington D C	San Francisco June 19 22
Trudeau Society	Theodore L Badger Boston 16	F L Kenker 1790 Broadway New York 19	Philadelphia May 19 23
Urological Assn	William J Baker Chicago	Samuel L Raines 188 S Bellevue Blvd Memphis Tenn	New Orleans La Apr 28 May 1
Venereal Disease Assn	Charles R Rein New York 19	S R Taggart 300 Indiana Ave N W Wash 1 D C	
Veterinary Medical Assn	W O Kester Washington D C	J G Hardenbergh 600 S Michigan Ave Chicago 5	Cleveland Aug 19 22
Assn for Research in Nervous & Ment Dis	Francis Braceland Hartford Conn	Rollo J Masselink 700 W 168th St New York 3	New York Dec 13 14
Assn for Research in Ophthalmology	T E Sanders St Louis	Lorand V Johnson 10515 Carnegie Ave Cleveland 6	San Francisco 58
Assn of American Medical Colleges	John B Youmans Nashville 5 Tenn	Dean F Smiley, 2530 Ridge Ave Evanston Ill	Atlantic City N J Oct 21 23
Assn of American Physicians	William S Tillett New York	P B Beeson Yale U Sch of Med New Haven 11 Conn	Atlantic City N J May 6
Assn of Life Ins Med Dir of America	Edson F Getman New York	Royal S Schaaf P O Box 594 Newark 1 N J	New York Oct 23 25
Assn of Medical Illustrators	Mr Lee Allen Iowa City	Miss Rose M Reynolds 42nd and Dewey Ave Omaha 5	Montreal Can Oct 7 9
Assn of Military Surgeons of U S	A R Koontz Baltimore	R F Bitner 1726 I St N W Washington 6 D C	Washington D C Oct 28 30
Assn of State & Territorial Health Officers	Franklin P Yoder Cheyenne Wyo	M I Shanholtz State Office Bldg Richmond Va	Washington D C Nov 1 9
Biological Photographic Assn	Mr H Lou Gibson Rochester 4 N Y	Miss J Waters Box 1668 Grand Central P O N Y 17	
Central Assn of Ob & Gyn	Arthur B Hunt Rochester Minn	Edwin J DeCosta 104 S Michigan Ave Chicago 3	Omaha Oct 24 26
Central Neuropsychiatric Assn	G Wilse Robinson Jr Kansas City Mo	H M Patterson Ohio S Univ Col of Med Columbus 10 Ohio	Dallas Tex Oct 18 19
Central Society for Clinical Research	Kenneth Kohlstaedt Indianapolis	William S Jordan Jr 2109 Adelbert Rd Cleveland 6	Chicago 195
Central Surgical Assn	Hilger P Jenkins Chicago 3	Charles D Branch 1002 North St Peoria Ill	Columbus O Feb 20 22
Clinical Orthopaedic Society	J Neill Garber Indianapolis 4	Marcus J Stewart 869 Madison Ave Memphis Tenn	Kansas City Mo Oct 11 12
College of American Pathologists	W A D Anderson Miami Fla	A H Dearing Prudential Plaza Suite 2115 Chicago 1	New Orleans Sept 30 Oct 4
Gerontological Society	William B Kountz St Louis 9	Nathan W Shock Baltimore City Hospitals Baltimore 24	
Industrial Medical Association	Jerome W Shilling Los Angeles 55	R Glenn Gardiner 3210 Watling St East Chicago Ind	April 23
Interstate Postgrad Med Assn of N A	J Mather Pfeiffenberger Alton Illinois	Erwin R Schmidt Box 1109 Madison 1 Wis	Chicago Sept 29 Oct 3
Medical Library Assn	Thomas E Keys Rochester Minn	Mrs H T Perkins, 333 Cedar St New Haven 11 Conn	Rochester Minn June 2 6
National Medical Assn	Theodore R M Howard Chicago	John T Givens 1108 Church St Norfolk 10 Va	
National Multiple Sclerosis Society	Mr Ralph C Glock New York	Mr Donald Vail [illegible] Fourth Ave New York 10	New York Mar 11
National Proctologic Assn	R A Winters Chicago	George E Mueller 59 E Madison St Chicago 2	
National Tuberculosis Assn	William M Morgan New York 19	Mrs Wallace B White 1790 Broadway New York 19	Philadelphia May 18 23
Neurosurgical Society of America	Lyle A French Minneapolis	Frank P Smith 260 Crittenden Blvd Rochester 20 N Y	
Radiological Society of North America	C Edgar Virden Kansas City Mo	D S Childs 13 E Genesee St Syracuse 2 N Y	Chicago Nov 17 22
Society for Investigative Dermatology	Walter C Lobitz Jr Hanover N H	Herman Beerman 255 S 17th St Philadelphia 3	San Francisco June 21 22
Society for Pediatric Research	Edward Pratt Dallas 19 Tex	Sydney S Gellis 818 Harrison Ave Boston 18	Atlantic City N J May 6
Society for Vascular Surgery	Arthur H Blakemore New York 32	Henry Swan 4200 East 9th Ave Denver 20	
Society of American Bacteriologists	J W Wilson Madison 6 Wis	F M Foster Univ of Wisconsin Madison 6 Wis	Chicago Apr 2 May 1
Society of Biological Psychiatry	Margaret A Kennard Vancouver B C	George N Thompson 2010 Wilshire Blvd Los Angeles 57	
Society of Clinical Surgery	James Priestley Rochester Minn	F F Albritten Jr Univ of Kans Kansas City Kan	New York Oct 11 12
Society of Neurological Surgeons	William German New Haven Conn	Bronson S Ray 525 E 68th St New York 21	
Society of University Surgeons	Harold A Zintel New York	James Hardy University Medical Center Jackson Miss	
Southeastern Surgical Congress	Howard Mahorner New Orleans 13 La	B T Beasley 45 Edgewood Ave S E Atlanta 3 Ga	Baltimore Mar 10 12
Southern Medical Assn	J P Culpepper Jr Hattiesburg Miss	Mr V O Foster Empire Bldg Birmingham 3 Ala	Miami Beach Fla Nov 11 14
Southern Surgical Assn	Floyd W McRae Atlanta Ga	George G Finney 2947 St Paul St Baltimore 18	W Sulphur Spgs W Va Dec 10 12
Southwestern Medical Assn	Celso C Stapp El Paso Texas	Russell L Deter 1501 Arizona St El Paso, Tex	El Paso Tex Oct. 9 11
Southwestern Surgical Congress	Kenneth C Sawyer Denver	C M O Leary 207 Plaza Court Bldg Oklahoma City	Houston Tex. Mar 31 Apr 2
Student American Medical Assn	Mr Robert Rakel Cincinnati 19	Mr Russell F Staudacher 510 N Dearborn St Chicago 10	Chicago May 1 4
The Endocrine Society	Leo T Samuels Salt Lake City	H H Turner 1200 N Walker St Oklahoma City	San Francisco June 19 21
U S Section Internat Coll of Surgeons	Cortice Rosser Dallas Texas	Karl Meyer 1516 Lake Shore Dr Chicago	Chicago Sept 9 12
Western Industrial Medical Assn	Douglas D McKinnon Los Angeles	Edward J Zaik, 540 S Olive St Los Angeles 14	Los Angeles Oct 4 6
Western Orthopedic Assn	Samuel Mathews Beverly Hills Calif	Walter Scott 354 21st St. Oakland 12 Calif	Santa Barbara Calif Oct 20 23
Western Society of Electro Encephalography	Arthur A Ward Jr Seattle	S N Berens 902 Boren Ave Seattle	
Western Surgical Assn	Everett P Coleman Canton Ill	John T Reynolds 612 N Michigan Blvd Chicago 11	Salt Lake City Nov 21 23
Woman's Auxiliary to the Am Med Assn	Mrs Paul C Craig Wyomissing Pa	Miss Margaret Wolfe 535 N Dearborn St Chicago 10	San Francisco June 23 27
World Medical Assn	J A Bustamante Havana Cuba	Louis H Bauer 10 Columbus Circle New York 19	Istanbul Turkey Sept 29 Oct 5



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POSTPHLEBITIC SYNDROME

Geza de Takats, M D, Chicago

• *The postphlebitic syndrome in the lower extremity follows thrombosis in the deep veins of the pelvis, thigh, or leg, the symptoms are edema, development of collateral veins, pigmentation, induration, especially above the medial malleolus, a characteristic dermatitis, and ulcer In about half the cases the thrombosis was connected with childbirth, injury, surgery, infectious disease, or prolonged immobilization Recanalization of the thrombus destroys the valves and leads to postural regurgitation Incometent communicating veins freely transmit, from the deep to the superficial veins, the sudden rises of venous pressure during coughing, lifting, straining, and sneezing The symptoms follow in a definite sequence, and the patient may present himself at any stage, from that of the initial thrombosis and subsequent bouts of periphlebitis, through the stages of edema, varicosities, pigmentation, dermatitis, and induration, to that of ulcer In order to prevent the long lasting, recurrent disabilities seen in the later stages, intensive treatment of the earlier stages is necessary*

The postphlebitic syndrome consists of a progressive development of deep venous insufficiency and its complications It is caused by a deep venous thrombosis in the pelvic veins or the deep venous system of the lower extremities This, in turn, produces edema, development of collateral veins, pigmentation, induration at the typical location above the medial malleolus, ulceration, and the so called stasis dermatitis Dermatologists are naturally interested in the large painful ulcerations and the dermatitis surrounding it It is my purpose to discuss my experience with this highly disabling, recurrent condition

Incidence and Prevention

The incidence of postphlebitic syndrome is difficult to estimate While many patients give a clear-cut history of a deep venous thrombosis after childbirth, injury, operations, infectious diseases, or prolonged immobilization, just as many patients have no recollection of such a vascular accident in the veins A "Charley horse' after bowling, an ankle-sprain, or a "ruptured muscle," so diagnosed and so treated by taping, is often the beginning of a series of events leading to serious disability

In the Scandinavian countries, where cases of postphlebitic ulcers are registered and covered by government insurance, the disease is regarded as a major disability causing the state an ever-recurring expense It is said to cost Denmark $291,000 and Sweden $582,000 a year

In the United States it is impossible to hazard a guess of the frequency of the disease, since many patients are not hospitalized and mortality is almost negligible, though invalidism is amazingly high Since the patients are in the hands of general practitioners, dermatologists, surgeons, druggists, soothsayers, and well-meaning neighbors, statistical figures are meaningless In the vascular clinics of medical schools, they constitute an ever-growing mass of disabled and much-suffering people for whom no amount of bed space is ever sufficient

The prevention of this progressive deep venous insufficiency lies, of course, in the early recognition of deep venous thrombosis and its intensive treatment with heparin sodium, elastic compression, and early ambulation Since most of the deep venous thromboses start in the foot and calf, an arrest of thrombosis below popliteal level prevents lasting edema and its sequelae One seldom sees the lesion at this stage and is usually confronted with the full-blown picture of the postphlebitic syndrome, simple to recognize and difficult to treat

Pathophysiology

Recanalization of the deep venous thrombus destroys the valves and leads to deep venous insufficiency, in other words, to postural regurgitation In 1929, my co-workers and I[1] measured venous pressure from the

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Read at the 15th annual meeting of the American Academy of Dermatology and Syphilology, Chicago Dec 12 1956 right side of the heart to the point of measurement Recently, the dynamics of venous circulation caused by the crippling of valves after thrombosis has been intensively studied in a number of clinics, including the one at the University of Illinois College of Medicine[2] It can be done by venography (fig 1), which we at the University of Illinois College of Medicine have used rather sparingly, by venous pressure measurements before and after exercise (fig 2),[2] and by clinical tests designed to locate the site of incompetent perforators (fig 3)

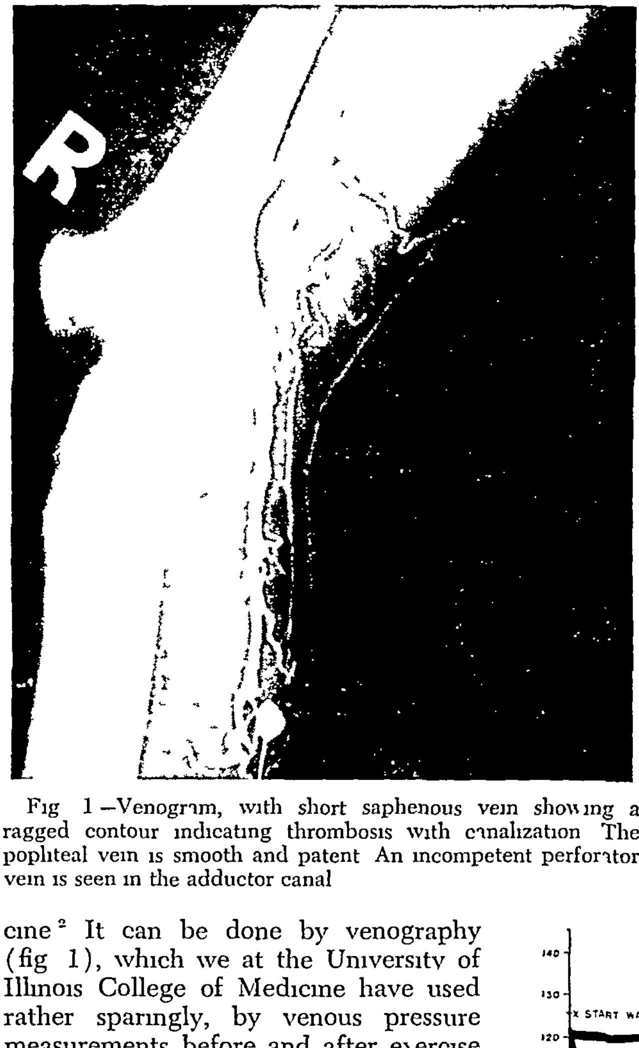

Fig 1—Venogram, with short saphenous vein showing a ragged contour indicating thrombosis with canalization The popliteal vein is smooth and patent An incompetent perforator vein is seen in the adductor canal

In order to obtain the venogram shown in figure 1, 35% iodopyracet (Diodrast) compound was injected into a saccular dilatation of the short saphenous vein, which enters the popliteal vein at the level of the lower margin of the patella Without going into details, one can state that normally the superficial system does not fill from the deep veins, that phlebography often localizes the level of obstruction in the superficial femoral vein in the thigh and shows huge tortuous perforator veins connecting the deep with the superficial venous system On muscular contraction, the opaque material routinely passes from the deep to the superficial venous system, as observed under the fluoroscope[3]

Fell and co-workers[3] showed that, when the communicating veins become incompetent, the sudden rises of venous pressure which occur on coughing, lifting, straining, and sneezing are freely transmitted to the superficial system Thus when the valves are incompetent, as occurs in the postphlebitic syndrome, the venous system functions as a unit (fig 4) and a retrograde transmission of hypertensive waves in the venous system due to effort leads to pain, edema, elongation, and tortuosity of capillaries and venules, thrombosis, and rupture of the cutaneous venocapillary network[4]

Clinical Manifestations

The postphlebitic leg exhibits edema, pigmentation, varicosities, pain, stasis dermatitis, induration, and ulceration in this decreasing order of frequency Bauer[5] has particularly been emphatic about the time element in the development of these sequelae All his patients showed edema in the affected leg from the very start Induration was seen in 45% 5 years after the onset of acute phlebitis, in 72% after 10 years, and in 91% later on Ulceration of the leg was seen in 20% 5 years after the acute phase, 52% after 10 years, and 79% later on

It has been my experience that energetic treatment of the acute phase with heparin sodium, elevation, tight elastic compression, and possibly a mercurial diuretic or acetazolamide (Diamox) may so minimize the edema that the hard, lymph stasis will not supervene In such cases, deep thrombosis will not be followed by these complications It is also possible that a short segmental thrombosis may develop, which is readily compensated by collateral deep veins and which does not recanalize

Induration—The involved extremity is usually but not always larger than the unaffected one, but bilateral involvement is very frequent In one group of cases, edema is absent and there is well-developed collateral circulation This is called compensated venous circulation, and it is significant that skin manifestations subcutaneous indurations, and ulcerations are absent In the majority of cases, however, due to neglected early treatment or to the extent of the occluding venous thrombus, there develops a subcutaneous plaque of

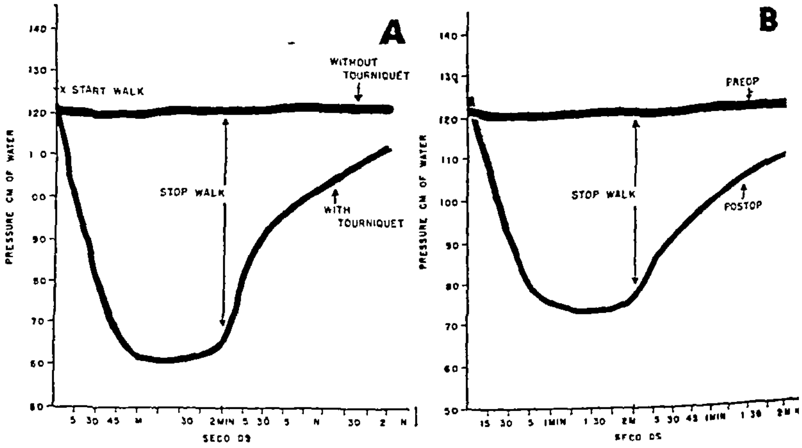

Fig 2—Walking venous pressure pattern of right leg before and after high ligation and stripping of superficial varicose veins A, before operation, venous pressure remained at 122 cm H O while patient both stood and walked With tourniquet, the pressure dropped to one-half of the standing pressure on walking, which is the normal response B, after operation, normal venous hemodynamics restored (Published with permission of Dr Schneewind, of the University of Illinois College of Medicine)

indurated fat and subcutaneous tissue which is hard and often recurrently inflamed It seems to be centered around some perforator veins on the medial aspect of the leg about the width of the hand above the inner malleolus (fig 5) and may start as a small patch to grow proximally and distally This postphlebitic induration may take on huge proportions, it may encircle the entire leg like a tight band or extend as high as the knee, mostly on the medial but sometimes on the lateral and posterior surfaces of the lower leg As John Homans first pointed out, these are areas of lymph stasis, but my dissections during operation have convinced me that the lymphatics are periphlebitic in origin and that invariably there is a canalized or inflamed superficial or communicating vein in the center of the induration

Such indurations may first be painless and show little inflammatory reaction They will flare up, however, on trauma, on infection or reinfection of the toes with fungi, or on a hematogenic basis, as, for example, after a sore throat or a respiratory infection They belong to the group of "delayed reactions to inflammation" and have interesting immunological connotations[6]

Edema—In 1931, Zimmermann and I[7] showed that a protein-rich exudate appears in the interstitial fluid at the production of thrombophlebitic edema This fibrinous exudate acts as a scaffold for the proliferation of fibroblasts and forms a hard, irreversible, nonabsorbable lymphedema The exudate contains growth-promoting properties and also a fibrinolytic ferment which dissolves the fibrin and causes marked retraction of tissue[8] This retraction of tissue is what one sees in an old postphlebitic induration, which retracts so as to give a peculiar inverted bowling-pin appearance to such extremities (fig 6)

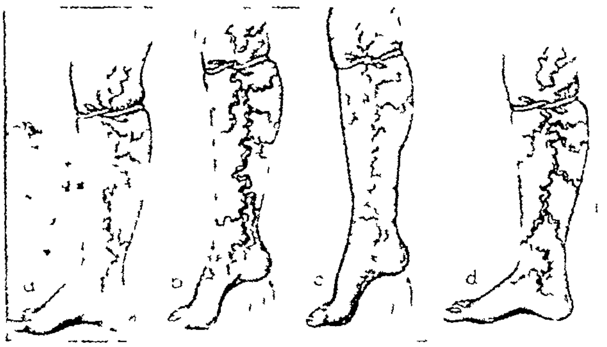

Fig 3—*A* tourniquet placed below knee to obliterate superficial varicosities *B* as patient stands on toes 10 times in 10 seconds visible veins become more distended, indicating increased venous pressure due to deep venous obstruction *C* veins empty on exercise as they should when popliteal vein is patent *D*, veins refill from above in spite of tourniquet being in place, thus indicating deep venous patency but deep valvular incompetence

The obliterative lymphangitis caused by an overload of fibrinous exudate or by superimposed infection reaches the regional lymph nodes, and it is not at all infrequent to encounter their hyperplasia in the popliteal fossa or in the groin Thus, among the many forms of lymphedema which one encounters, postphlebitic lymphedema is frequent and is of mixed, venous and lymphatic, origin As a matter of fact, venous insufficiency improves with time because of the development of collateral circulation, and the residual postphlebitic edema is essentially due to lymph stasis

Stasis Dermatitis—The hard postphlebitic patches are vulnerable, break down easily, and form ulcers, which show poor granulations and are often secondarily infected by a variety of bacteria The skin itself is frequently involved in the form of an acute dermatitis, with or without ulceration, which is usually aggravated by overtreatment and by sensitization and scratching This so-called stasis dermatitis is often followed by a generalized eruption, but there is no question that the edematous leg is the most resistant to treatment

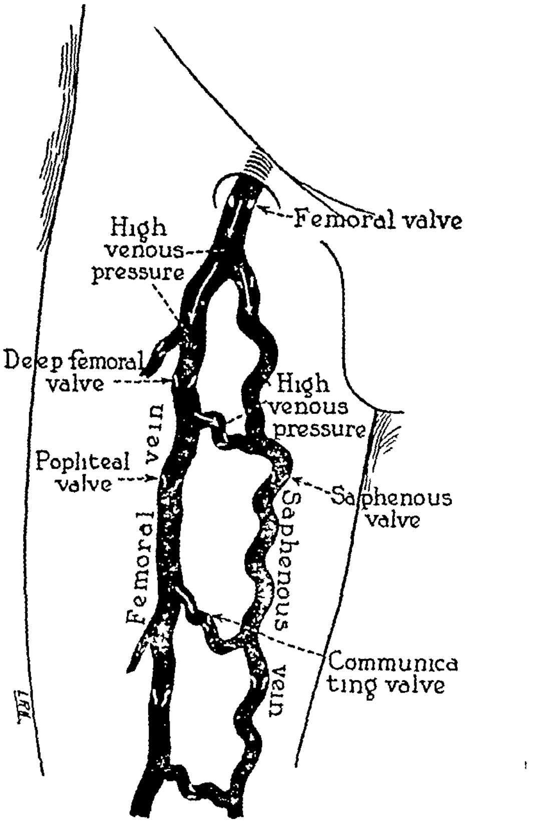

Fig 4—Valvular incompetence in postphlebitic syndrome of saphenous communicating, and deep veins thus causing the venous system to function as a unit (Reproduced with permission from W B Saunders Company)

The mechanism of this stasis dermatitis is beyond my competence to evaluate We do know, however, that extensive venous and lymphatic edema may exist for many years without any involvement of the skin At other times, one has the definite impression that a deep-seated lymphangitis may show a retrograde spread into reticular pattern of lymphatics and that antigen-antibody reactions are always more intense because of the concentration of antibodies in lymphedematous tissue It is sufficiently known that the skin in postphlebitic edema is vulnerable, that incisions and infections heal slowly, that dermatitis resists skillful dermatological care, and that sensitization to sulfonamides, antibiotics, adhesive tape, and petrolatum is very common

The ulcer itself has a poor necrotic base, often producing a periostitis of the tibia, the bacterial flora is variable but contains micrococci (staphylococci), streptococci, Pseudomonas aeruginosa, Proteus organisms, and Escherichia coli[9] The sensitivity of these organisms to various antibiotics can be readily tested, but, as will be pointed out, topical antibiotic treatment is seldom resorted to

The pH of the secretions can be roughly determined by an indicator paper, and it seems that it is mostly acid due to infection and localized ischemia[10] The optimum pH of the granulation tissue ready to accept a graft is above 7 4 Surrounding the ulcers is an induration over which the skin is often thin, atrophic, and loaded with hemosiderin There may also be a second zone of acute inflammatory reaction which may reach from ankle to knee and is very painful

Occasionally one sees a thin strip of itching dermatitis along the course of an inflamed saphenous vein or its perivenous lymphatics I have also seen retrograde spread of periphlebitis originating in fungus infections of the vulva and vagina, these may take on the aspect of an epidemic, as happened in a nursing school in West Virginia Other complications consist of small venocapillary thromboses near the skin surface, petechiae, and an occasional massive hemorrhage from a feeder vein just below the ulcer More frequent are the recurrent thromboses in collateral veins, with much periphlebitic reaction around them, thus causing the physician much alarm and leading to weeks of bed rest, which is unnecessary

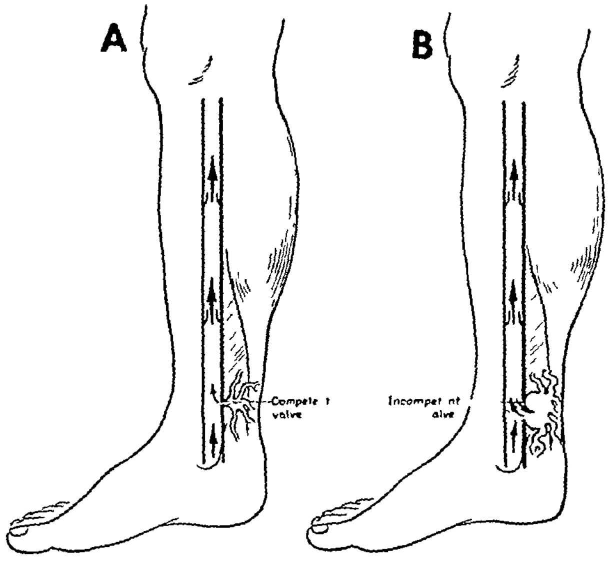

Fig 5—Perforator vein at typical location width of hand above medial malleolus *A* normal inward flow *B* abnormal outward flow (Reproduced with permission from Cockett F B *British Journal of Surgery*, November, 1955)

Treatment of Various Phases

Incipient Deep Thrombosis—There are, of course, many stages of this progressive development of deep venous insufficiency, and I shall start with the description of the treatment of incipient deep thrombosis In this early phase, there is calf pain, perhaps a little cyanosis on dependency, and possibly some distention of the dorsal veins of the foot as compared with those of the unaffected side There may be minimal or no edema On inflation of a blood pressure cuff on the affected limb to 80 to 100 mm Hg, severe pain is experienced, whereas the normal calf will tolerate pressures up to 180 mm Hg without pain[11] The dorsiflexion of the foot evokes pain in flexor muscles of the calf or in the popliteal fossa, but this sign of J Homans' is only present in roughly one-half of the cases The affected calf, however, is frequently warmer

A patient with such a condition is immediately hospitalized, with the foot of the bed being elevated 8 to 10 in above the horizontal The leg is snugly wrapped from toes to knee, and heparin is given intravenously, with 100 mg being given every six hours for three days, followed by 100 mg given subcutaneously every eight hours for two weeks The patient is ambulatory after three days and frequently may go home on the fifth day, administering the subcutaneous injections to himself for two weeks He then wears an elastic hose for 6 to 10 weeks, depending on the amount of swelling[12]

This early treatment eliminates or minimizes the postphlebitic syndrome, but, unfortunately, most patients are not seen so early or they are immobilized for weeks in bed, with such immobilization favoring an ascent of the small thrombus in the calf to the femoral or iliac segment When the thrombus reaches the popliteal level, sudden, painful, massive edema develops in the calf When it reaches the iliofemoral segment, the entire extremity enlarges and becomes cyanotic and cold with diminished pulses, thus exhibiting the symptoms of reflex vasospasm and sweating In this stage, one can aspirate the femoral thrombus with the patient under local anesthesia, suture or ligate the femoral vein, and start regional heparinization by having 100 mg of heparin in 5% dextrose solution drip into a superficial vein at the ankle two to three times a day In case of vasospasm, the lumbar sympathetics are blocked with procaine hydrochloride, but this should always be done before, not after, heparinization, because massive retroperitoneal hemorrhage or fatality may occur

All this is done to minimize residual edema, since this early soft edema may still be mobilized Later the edema becomes mixed, mostly lymphatic, develops hard patches with subcutaneous fibrosis and fat necrosis, and will require surgical removal

Periphlebitis—The treatment of the fully developed postphlebitic syndrome needs considerable individual variation Recurrent bouts of periphlebitis are treated by short intervals of intense elevation of the limb Phlebitis and periphlebitis in the collateral veins require no prolonged bed rest, but small doses of x-ray not exceeding 80 r, with a heavy filter being used, have been shown by my co-workers and me[13] to be useful The definitive treatment of these recurrent phlebitic bouts consists of a thorough removal of all superficial veins with ligation of the incompetent perforators after the acute attack has subsided

Edema—The control of the edema is important A large edema of the thigh prohibits elastic compression reaching only to the knee, individually fitted elastic stockings are fairly satisfactory, but postural drainage of the edematous limb should be done overnight by having the foot of the bed raised as well as having it raised two or three times during the day for 30 minute periods Certainly if the leg is only swollen to the knee, a well-applied elastic bandage made of crepe or of rubber is very effective A hose can be worn in the evening for improvement of the appearance of the elastic support, but it is seldom as efficient The hose or any impermeable material is contraindicated, however, in case of a dermatitis, since sweating under the hose aggravates the skin lesion

Most patients discover that motionless standing, sitting with the feet hanging down, excessive intake of alcohol or any other liquid, too much salt in the diet, and the premenstrual state with sodium retention aggravate the edema For this reason, all these factors should be avoided or minimized as much as possible An antidiuretic, such as ninhydrin or acetazolamide, given orally for four to five days before menstruation seems to depress the water retention

Varicosities—The huge varicosities of the long or short saphenous vein, which in the past were regarded as a compensatory collateral circulation, are now regarded as being due to a valvular insufficiency resulting from recanalized thrombi and unquestionably contribute to the insufficient venous return, to the poor arterialization of the tissues, and to the terminal venocapillary stasis and thrombosis For this reason, these are thoroughly ligated and stripped, with special attention to the incompetent perforators[14] One has to postpone this procedure, however, if there is an acute dermatitis present or if there is an acutely inflamed postphlebitic ulcer

Dermatitis—The acute dermatitis is managed with the help and advice of the dermatologists, with whom we at the University of Illinois College of Medicine have had very close teamwork The use of wet dressings with weak solutions of aluminum subacetate applied for one hour three times a day and alternated with a 3% iodochlorhydroxyquin (Vioform) ointment in water soluble base has been very useful More recently the use of steroid ointments, notably 1 and 3% hydrocortisone (Hydrocortone), with and without an antibiotic combination, has been useful I am not impressed with the oral use of cortisone and its homologues and feel it has been abused by the general practitioner and some of the specialists Since extensive surgery may have to be done in many of these patients, the danger of a postoperative adrenal insufficiency is a real hazard and may require massive postoperative doses of cortisone and a slow withdrawal of the drug It also causes fluid retention and the type of hypochloremic alkalosis which one sees in certain types of hypertension

Induration—The postphlebitic induration, which usually starts with a small subcutaneous patch of fibrosis and fat necrosis surrounding an incompetent perforator vein, spreads up and down the calf on the medial side and rather infrequently on the lateral or posterior side The induration is first painless and can only be recognized when it is looked for, but later it will involve the skin and give it the orange-peel aspect of breast cancer The induration gradually extends toward the knee or may surround and constrict the ankle, giving it the appearance of an inverted bowling-pin It will get painful, red, and hard after an injury or an infection of any sort and must be treated either with hot fomentations and bed rest or by a semirigid support, such as a glycerin-gelatin cast which we have now used in our clinic for over 30 years One can use small doses of x-ray (60 to 80 r with a heavy filter) through this cast and can renew the cast every three to four weeks Ultimately, excision of the induration is best, with the skin being saved unless it is badly damaged, as well as excision of the indurated subcutaneous tissue, the necrotic fat, and even the deep fascia if it is visibly involved

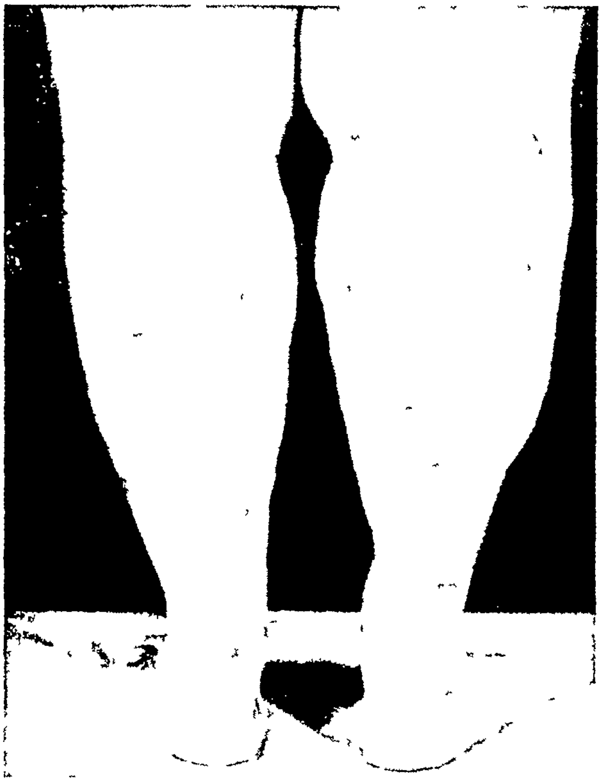

Fig 6—Marked retraction of fibrous tissue above both malleoli of right leg giving leg the appearance of an inverted bowling pin Ligation and stripping of long and short saphenous veins had been combined with excision and split-thickness skin graft

Ulcer—In case the induration breaks down and postphlebitic ulcer (fig 7) develops, several modes of treatment are available One can try to heal the ulcer first with the glycerin-gelatin casts, with the patient kept ambulatory and at work After the ulcer is healed, one can then treat it as a postphlebitic induration by excision, with or without grafting The ulcer with the surrounding fibrous collar can be excised and then 7 to 10 days later a split-thickness skin graft done Or the ulcer can be widely excised and immediately covered with skin, this latter being our choice at the clinic Naturally if the long or short saphenous veins are incompetent, these are stripped at the same time

The most important decision here is whether or not the skin covering the induration should be saved or whether it should be widely excised as in the presence of an ulcer Various methods have been proposed, such as that of using the histamine-flare[9] or a sky-blue dye intradermally[15] to delineate the area devoid of lymphatic circulation In my experience, the palpation of the skin, its texture, atrophy, and obvious vulnerability are the best guides

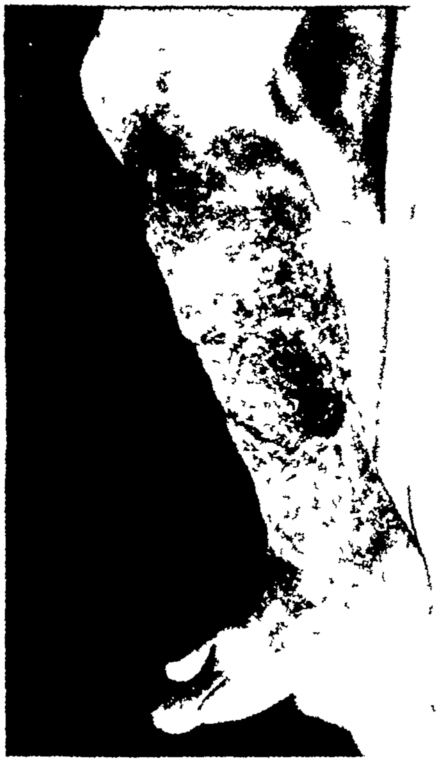

Fig 7—Badly neglected postphlebitic ulcer, with huge induration, dermatitis, and periphlebitic streak at the knee Such a lesion requires patient to be hospitalized four to six weeks

The fate of skin grafts is interesting Most of them have held up under severe strain for 15 to 20 years In 10% of over 200 grafts, the skin broke down again and had to be regrafted in part The causes of the breakdown were direct trauma, insufficient removal of venous back pressure, uncontrolled edema because of poor elastic support, or superimposed arterial disease with or without diabetes Certainly patients with sizable skin grafts should never be without elastic support during the day They should change occupation if possible Bartenders, butchers, motormen on streetcars, and saleswomen are especially endangered Grandmothers holding their grandchildren on their lap have their ulcers reopened by having the grandchildren kick their swollen leg which dates to the birth of the child's mother

Other Methods of Treatment

Some other methods used occasionally for the treatment of the postphlebitic syndrome need to be mentioned Following Bauer's report,[5] Graupner and I[16] ligated the popliteal vein in a small group of patients in whom back pressure through the deep venous system was especially marked Since that report made five years ago, we have ligated a few more popliteal veins but never the superficial femoral vein as originally advocated by Linton and Hardy[17] More recently we have abandoned all deep venous ligations for post-thrombotic sequelae While it is true that the hydrostatic mechanisms are aided by deep venous ligations, during walking or exercise the venous pressures are not relieved but increased[18]

Sympathectomy or repeated sympathetic blocks have been advocated to overcome the vasospastic element in postphlebitic edema We at the clinic have used this method very sparingly and only recognize two indications for it When the postphlebitic leg is cold and clammy and shows diffuse vascular pain, the use of repeated blocks or sympathectomy is most helpful When the postphlebitic leg shows a reflex hyperhydrosis and a recurrent weeping eczema, sympathectomy dries the skin and helps the healing of the resistant eczema In the majority of cases, however, I have not eliminated vasomotor control, since it does not relieve edema in this situation but may even increase it

The chronic postphlebitic ulcer, which is intermittently treated by elastic support, powders, salves, cortisone, and x-ray, may heal and open year after year The saphenous and posterior tibial nerves may become caught in the scar and produce severe pain Through the ulcer, which may take in half of the medial aspect of the calf (fig 7), the patient loses much protein, thus leading to hypoproteinemia He loses sleep, is unable to eat, and is anemic, depleted, and fretful Occasionally the ulcer may show malignant degeneration, and fre-

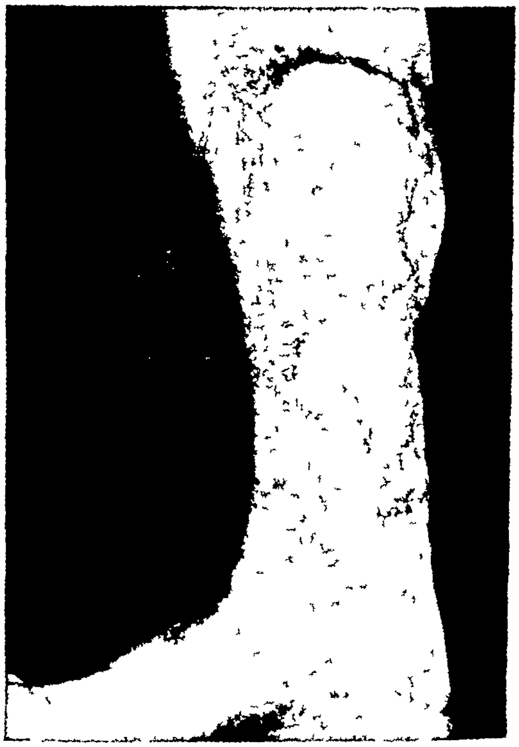

Fig 8—Skin graft in place for seven years in obese cook of low-grade intelligence She had had recurring ulcerations with dermatitis and generalized skin eruptions for over 20 years after a postpartum thrombosis of the right lower extremity

quently an arteriolar sclerosis develops in the surrounding fibrous collar, which prevents the formation of normal granulations and the penetration of antibiotics through the systemic circulation

Many of these patients on coming to the surgeon are sensitized to antibiotics, have had generalized dermatitis, and may have had too much x-ray therapy This can all be avoided by an early surgical excision of the postphlebitic induration and a scrupulous control of any residual edema (fig 8)

Summary

The progressive development of the sequelae of deep venous thrombosis consists of edema, varicosities, pigmentation, dermatitis, induration, and ulceration While many patients do not give a clear-cut history of deep venous thrombosis, it should be suspected in all of those who exhibit varicosities The prevention of this long-lasting and recurring disability lies in early and intensive treatment of the venous thromboses For later stages, the control of edema by elastic support, the elimination of venous back pressure by the ligation and stripping of superficial and perforator veins, the early excision of postphlebitic indurations, and the wide excision and grafting of chronic spreading ulcerations are necessary

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Acute Viral Hepatitis—The hepatotrophic viruses responsible for infective hepatitis and serum hepatitis have still not been adequately identified or cultured, neither has a susceptible experimental animal been discovered The time during which the virus is present in the blood and, in the case of infective hepatitis, in the faeces is therefore uncertain It is probably wise to isolate the patient for the first week of jaundice and to take special care in disposal of excreta In view of possible persistence of virus in the blood, convalescents should be banned from ever donating blood There is no safe way of sterilizing human blood or plasma of the hepatitis virus and instances of hepatitis have occurred in recipients of blood previously treated with ultra-violet irradiation or to which *B*-propiolactone has been added Transmission of virus hepatitis by imperfectly sterilized syringes or needles is prevented by dry heat sterilization to 180 C (356 F) for one hour or by boiling for five minutes It is usually recommended that the patient with acute hepatitis should be kept in bed until symptom free, clear of jaundice and until the liver edge is no longer tender Alcohol abstinence should be urged for at least six months, and preferably for one year, after recovery from virus hepatitis Cortisone and corticotropin result in a rapid fall and a lower peak in the serum-bilirubin concentration with more rapid reversion to normal of the thymol and cephalin cholesterol tests These drugs must be continued well into the convalescent stage, because premature withdrawal leads to relapse Prolonged administration of these hormones carries the usual complications In a disease such as hepatitis which tends towards spontaneous recovery, the benefit is not sufficient to justify their routine use They may be considered in the patient who is deeply jaundiced for several weeks, and in relapses—S Sherlock, M D, F R C P, Advances in the Treatment of Diseases of the Liver, *The Practitioner,* October, 1956

ENERGY COST OF THE MASTER TWO-STEP TEST

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and
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• The Master two step test consists of a certain number of trips (approximately 20) over a set of two 9 in (23 cm) steps in 90 seconds The exact number is determined for each subject according to his age and weight, and the score is determined by the time required for the subject's pulse and blood pressure to return to their preexercise levels The calculated total work for the average subject (weighing 77 2 kg) was 710 kg m The work done per minute was 480 kg-m and corresponded to an oxygen consumption rate of 1,485 ml per minute This was found to be about 6 8 times the resting oxygen consumption of all subjects, regardless of age, weight, or health, and to fall between stair-climbing and deep knee bends on a scale of severity for physical exercise Comparisons were made between a group of 12 patients with rheumatic heart disease and 85 volunteer subjects classified as strictly normal The latter were chosen from an initial group of 126 men they had no known history of heart disease, gave normal electrocardiograms during rest and after exercise, had resting blood pressures of 140 mm Hg or less systolic and 90 or less diastolic, and gave normal blood pressure responses to exercise Comparisons were also made between a group of 31 patients with arteriosclerotic heart disease and 40 of the strictly normal subjects matched as to age and weight The strictly normal subjects differed from the cardiac patients in being able to consume oxygen faster during the exercise period The cardiac patients deferred a greater part of the oxygen demand to the recovery period The promptness with which heart rate and blood pressure returned to preexercise levels combined with electrocardiographic changes afforded a better basis for discriminating between normal subjects and cardiac patients than did either the electrocardiogram or the ballistocardiogram alone The Master two step test was found to have a sound physiological basis, especially since the stress it imposes is comparable to the demands of the ordinary activities of life and is constant for patients of different ages and weights

Master's two-step test is widely used as a standardized stress to elicit the electrocardiographic changes of coronary insufficiency Although this form of exercise was originally chosen because of its simplicity and familiarity, there are no data to indicate how severe an exertion it represents or how it can be compared with the stress of ordinary activities of a patient's job The purpose of this study is, first, to measure the energy cost of the two-step test and, second, to observe the physiological reaction to this stress of normal individuals and of patients with heart disease

When Master began to observe the electrocardiographic changes elicited by his two-step test,[1] attention was diverted from its original physiological basis, which did not include the use of electrocardiograms The test consists of approximately 20 trips over a set of two 9-in steps in the period of a minute and a half[2] The exact number of trips is determined for each subject according to his age and weight The number of trips for each category was originally established by determining the maximum number of trips a normal individual of a given age and weight could make and still have pulse rate and systolic and diastolic blood pressures return to within 10 "points" of resting level within two minutes Observations of the recovery rates of pulse and blood pressures were therefore incorporated in the present study, as well as measurements of ventilation, oxygen utilization, oxygen consumption, and oxygen debt necessary to quantitate the energy cost of Master's test In addition, resting ballistocardiograms were taken for correlation with the response to exercise

Subjects

A total of 197 subjects were studied, of whom 126 were in the unselected control group and 71 were in the group of subjects with heart disease

The unselected control group consisted of 126 men, mostly of professional status, who volunteered as "normal" individuals with no known history of heart disease Five of the group were found to have abnormal resting electrocardiograms, and nine, resting hypertension (blood pressure above 140 mm Hg systolic or 90 mm Hg diastolic) These subjects were eliminated as controls, leaving a group of 112 who may be designated "controls normal at rest" Out of this smaller group, 27 subjects showed abnormal response to exercise, 17 in terms of blood pressure and 10 in terms of electrocardiographic changes, as will be defined When these individuals were eliminated, there remained 85 strictly normal controls" who had no evidence of possible cardiac disease by any of the criteria cited There were in the present study 20 such strictly normal controls in each decade from age 20 to 60 years Five subjects in the seventh decade were included who showed abnormal blood pressure response, since it did not appear possible to find subjects of this age without this "abnormality' The 'strictly normal" control group has been used for most of the comparisons in this study, but the 'controls normal at rest" have necessarily been used in evaluating the incidence of abnormal blood pressure and electrocardiographic responses

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Seventy-one men with recognized heart disease were studied They represent a random cross section of patients of the Work Classification Clinic of the Cleveland Area Heart Society All subjects were ambulatory, working, and relatively active, and none had been recently confined to bed None of the subjects had congestive cardiac failure at the time of the study or had had a myocardial infarction within the previous two months Forty-three had arteriosclerotic heart disease and normal blood pressure, 16 had hypertensive cardiovascular disease, and 12 had rheumatic heart disease

TABLE 1 —*Composition of Group with Normotensive Arteriosclerotic Heart Disease*

Diagnosis	Patients No
Myocardial infarction confirmed by electrocardiogram	19
Myocardial infarction confirmed by electrocardiogram plus angina	14
Myocardial infarction by history only	8
Angina by history without infarction	2
Total	43
Class Functional and Therapeutic Classification*	
1B	8
1C	1
2C	28
3C	6
Total	43
Age Yr Age Distribution	
20-29	1
30-39	[illegible]
40-49	[illegible]
50-59	[illegible]
60-69	[illegible]
Total	43

* From Nomenclature and Criteria for Diagnosis of Diseases of Heart and Blood Vessels [3]

The composition of the group with arteriosclerotic heart disease is summarized in table 1 Ninety-five per cent of the subjects had had myocardial infarction, 63% were placed in class 2 The latter were patients with cardiac disease resulting in slight limitation of physical activity, they are comfortable at rest, ordinary physical activity results in fatigue, palpitation, dyspnea, or anginal pain " [3] The age distribution corresponded roughly to that seen in the clinic population

Nine of the 16 patients in the hypertensive cardiovascular disease group had intermittent or borderline hypertension, and 7 had definite hypertension according to Master s most recent criteria [4] The average systolic blood pressure for the entire hypertensive group was 154 ± 17 6 mm Hg, and the average diastolic pressure was 101 ± 13 6 mm Hg The age range was 31 to 58 years

Six of the 12 subjects with rheumatic heart disease had mitral stenosis and insufficiency, while 6 had combined lesions of the mitral and aortic valves Four were classified 1B, seven, 2C, and one, 3C The ages ranged from 21 to 62 years

Methods

Each subject reported to the laboratory at least two hours after a meal and free of upper respiratory or other infections The step test was demonstrated and practiced once Height and weight were then taken, and a resting longitudinal ballistocardiogram was taken on the Starr table A half-face mask was carefully fitted and taped From the mask, expired air passed through a Plexiglas valve and tubing to a threeway stopcock (minimum internal diameter, 2 0 cm) supported on a light wooden pack frame Expired air was collected in latex weather balloons and analyzed within 15 minutes The total weight of the apparatus carried by the subject was 2 5 kg (5 5 lb) The subject was seated, and his blood pressure was measured at one-minute intervals until a steady state was achieved In this stable resting state a standard 12-lead electrocardiogram was taken, and a five-minute sample of expired air was collected The subject was then instructed to stand and at a signal begin the step test in time with a metronome adjusted so that each subject would complete his required number of trips in one and one-half minutes for a single standard Master two-step test (fig 1) The air expired during the exercise period was collected as a single sample Immediately upon completion of the exercise, the subject was again seated, and a complete 12-lead electrocardiogram was taken Blood pressure and pulse rate were recorded two minutes after completion of the exercise The air expired during the recovery period (13½ minutes) was collected as seven samples, an initial one of 1½ minutes, and the rest of 2 minutes each A second complete electrocardiogram was taken five minutes after the completion of exercise

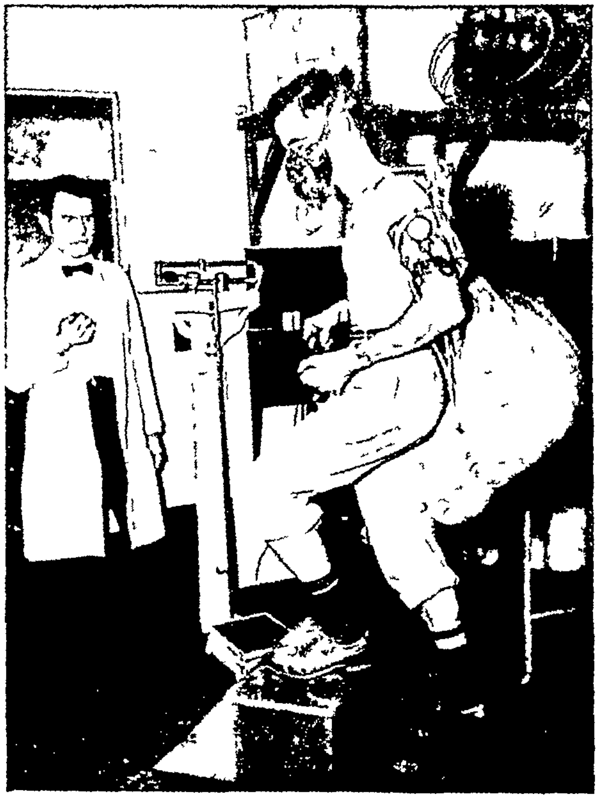

Fig 1 —Subject performing two step test, wearing mask, collecting bag sphygmomanometer and electrocardiographic leads

Expired air samples were analyzed with a Pauling-Beckman oxygen analyzer,[5] and volume was measured with a wet-test gas meter Oxygen consumption was calculated from the following formula

$$OC = V \times 10(O_i - O_e)$$

where

OC = oxygen consumption (milliliters per minute)

V = minute volume of expired air (liters per minute) corrected to standard conditions (760 mm Hg barometric pressure and 0 degree [C] temperature)

O_i = percentage of oxygen in inspired air

O_e = percentage of oxygen in expired air

TABLE 2 —*Response of Eighty-five Normal Control Subjects to the Master Two-Step Test*

	At Rest Mean±S D	During Exercise Mean±S D	During Recovery Mean±S D
Weight kg	77 7 ± 8 6		
Duration of exercise min		1 55±0 095	
Ventilation liters/min	8 09± 1 3	18 9 ±7 5	
Oxygen utilization ml O /100 ml air	3 17± 0 43	5 12±0 65	
Oxygen consumption ml /min	254±37	1 018±120	
Total net* oxygen consumption during exercise ml		1 185±205	
Net oxygen debt ml			1 105±300
Total net oxygen consumption per minute exercise ml /min		1 485±244	
Rate of work kg m /min		480±65	

* ' Net refers to values above resting level

Oxygen utilization is defined as milliliters of oxygen absorbed from each 100 ml of air breathed ($O_i - O_e$) "Work" performed by each subject was taken as the product of his body weight and total vertical distance his body was raised during exercise

Results

Normal Subjects —The response of the 85 strictly selected subjects is summarized in table 2 During exercise the rate of oxygen consumption increased to four times the resting level The cost of exercise was almost equally distributed between the exercise and recovery (oxygen-debt) periods, i e, 1,185 and 1,105 ml of oxygen respectively The increased oxygen consumption during exercise was the product of an increase of ventilation to 2 3 times and of oxygen utilization to 1 6 times the resting levels The various physiological functions (pulse rate, ventilation, oxygen utilization, oxygen consumption, oxygen debt, and work rate) at rest and during exercise were compared by decades to determine whether they were correlated with the age of the subjects The only quantity which showed such a pattern was the rate of work, which was significantly lower (p=<0 01) in each decade above 40 years, as indicated by the *t*-test Since, as has been noted, total net oxygen consumption per minute of exercise was not significantly lower in the older age groups, the ratio of work performed to oxygen consumption was lower in the older subjects This ratio may be considered a rough index of mechanical efficiency It is plotted against age in figure 2 These data suggest that in this brief, moderately severe exercise the older subjects display a slightly lower mechanical efficiency The "strictly normal' control subjects, by definition, showed a return of pulse rate and systolic and diastolic blood pressures to within 10 "points" of resting level within two minutes after exercise The response of the group of controls normal at rest will be considered below

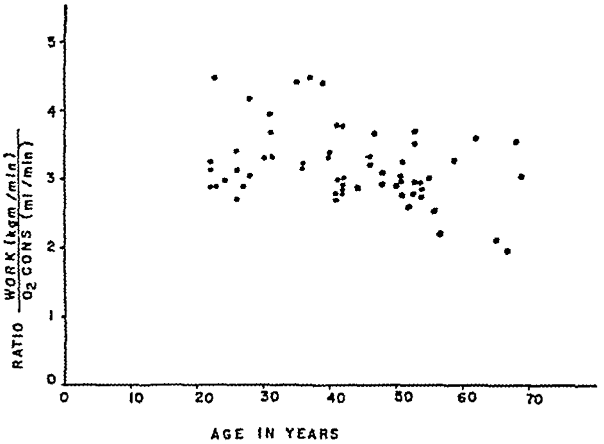

Fig 2 —Ratio of work performed to oxygen consumption (mechanical efficiency) in relation to age of 85 control subjects

TABLE 3 —*Patients with Arteriosclerotic Heart Disease Compared with Normal Control Subjects**

		40 Normal Controls Mean±S D	31 Patients with Arteriosclerotic Heart Disease Mean±S D	p
Age, yr		48 2 ± 5 7	49 6 ± 5 9	<0 4
Weight kg		77 3 ± 7 7	77 4 ± 8 5	>0 9
Duration of exercise min		1 55 ± 0 10	1 57 ± 0 14	<0 6
At rest	Ventilation liters/min	8 18 ± 1 2	8 63 ± 1 3	<0 2
	Oxygen utilization ml O_2/100 ml air	3 00 ± 0 38	2 98 ± 0 48	<0 9
	Oxygen consumption ml /min	244 ± 30	258 ± 38	<0 1
During exercise	Ventilation liters/min	19 8 ± 2.9	18 6 ± 2 9	<0 2
	Oxygen utilization ml O_2/100 ml air	5 01 ± 0 56	4 52 ± 0.55	<0 001
	Net† oxygen consumption ml /min	1 141 ± 200	913 ± 230	<0 001
Oxygen debt ml		1,160 ± 260	1,302 ± 400	<0 1
Total net oxygen consumption per minute exercise ml /min		1 485 ± 230	1,419 ± 330	<0 4
Work rate kg m /min		457 ± 45	449 ± 60	<0 6
Ratio oxygen consumption during exercise oxygen debt		1 06 ± 0 38	0 75 ± 0.27	<0 001
Ratio work performed total net oxygen consumption		0 336 ± 0 046	0 313 ± 0 060	<0 7

* Groups compared by *t* test

† 'Net refers to values above resting level.

Subjects with Arteriosclerotic Heart Disease —Because the control group included more subjects in the third and fourth decades than did the group with arteriosclerotic heart disease, statistical comparison was made in the 40-to-59-year age range, where the groups were comparable in size (40 and 31 subjects respectively) The comparison of the two groups is summarized in table 3 The normal subjects and those with arteriosclerotic heart disease were closely comparable in number, age, weight, and time required to complete the exercise At rest, there were slight but not statistically significant differences in ventilation and oxygen consumption The outstanding and significant difference between the two groups was a diminished ability on the part of the subjects with coronary arteriosclerosis to increase oxygen utilization during this exercise Since they increased ventilation to a level closely similar to that reached by the controls but failed to increase oxygen utilization equally, oxygen consumption during exercise was significantly lower, and the ratio of extra oxygen consumption during exercise to that during recovery (oxygen debt) was significantly lower than in the control group "Mechanical efficiency' (kilograms of work performed to milliliters of oxygen consumed per minute) was slightly lower in the patients with arteriosclerotic heart disease, although the difference is not statistically significant

The response of the entire group with arteriosclerotic heart disease in terms of blood pressure and electrocardiographic changes is presented in table 4 "Abnormal blood pressure response" is defined as failure of either systolic or diastolic blood pressure to return to within 10 mm of resting level by two minutes after exercise [2] "Abnormal electrocardiographic response" is defined by Master [1] and consisted in all cases in this study of an S-T segment depression of greater than 0 5 mm or a primary T-wave change The control group used for comparison here consisted of the 112 controls "normal at rest' An abnormal blood pressure response occurred in a high proportion of patients (65%) but was also observed in the control subjects (17%) Electrocardographic abnormalities appeared in 40% of the patients and 7% of the controls (The electrocardiographic abnormalities in the "normal' adult male sample may be functional [1] or may reflect otherwise inapparent coronary disease) The best discrimination between the two groups is achieved by observing those subjects who show both abnormal responses 4% of the control group and 30% of the arteriosclerotic group

The abnormal response of pulse rate as defined by Master (failure to return to within 10 beats per minute of resting level in two minutes) was not found to be a sensitive criterion It was observed in only three of the patients and one of the control subjects, and these subjects all displayed other abnormalities

Ballistocardiograms For interpretations of the resting longitudinal ballistocardiograms we are indebted to Dr Melvin W Harris, of Canton, Ohio The tracings were read "blind" without any previous knowledge of the subject's diagnosis or response to exercise The criteria of abnormality were those of Dock and coworkers [6] Ballistocardiograms were read as normal, borderline (grades 1 and 2 of Dock's classification), and abnormal Three per cent of the strictly normal group had abnormal ballistocardiograms, and 6% had borderline tracings In the group with arteriosclerotic heart disease, 35% of the ballistocardiograms were abnormal and 27% were borderline Abnormal ballistocardiograms were more frequent in the older age group The average age of control subjects with abnormal records was 54 years (the youngest was 48), while the average age of control subjects with normal ballistocardiograms was 39 years This age difference was not evident in the group with arteriosclerotic heart disease, probably because the average age of the group was greater than that of the control group (49 years vs 40 years)

The data were examined to determine whether an abnormal resting ballistocardiogram in a patient with coronary disease could be correlated with abnormal physiological function during exercise No such correlation could be demonstrated It should be noted that the ballistocardiograms were taken at rest, and the physiological functions were studied before, during, and after exercise It may be that ballistocardiograms recorded after exercise would correlate better Among 12 patients with arteriosclerotic heart disease and abnormal ballistocardiograms, the incidence of abnormal response of blood pressure was 58% of abnormal electrocardiographic response 25%, and of both abnormal responses 17% Among 12 patients of the same age with arteriosclerotic heart disease and normal ballistocardiograms the respective incidences were 42%, 25%, and 17% These two groups were also compared in respect to the physiological functions which had been shown to differentiate the control subjects from those with arteriosclerotic heart disease For those with arteriosclerotic heart disease and abnormal ballistocardiograms, the mean oxygen utilization during exercise was 4 29 ml of oxygen per 100 ml of air, the mean net oxygen consumption during exercise was 870 ml, and the mean ratio of oxygen consumption during exercise to oxygen debt was 0 80 For the patients with normal ballistocardiograms, the respective values were 4 43 ml of oxygen per 100 ml of air, 847 ml, and 0 73 None of the differences are statistically significant (p=>0 5) Similarly, the control subjects with abnormal ballistocardiograms could not be shown to differ significantly from those with normal records except in respect to age

TABLE 4—*Incidence of Abnormal Responses to Exercise of Controls and Three Groups with Heart Disease in Terms of Blood Pressure and Electrocardiographic Changes*

	Abnormal Blood Pressure Response		Abnormal ECG Response		Either or Both Abnormal Responses		Both Abnormal Responses	
	No	%	No	%	No	%	No	%
Controls normal at rest (112)	19	17	8	7	23	21	4	4
Patients with arteriosclerotic heart disease (43)	28	65	1	40	32	74	13	30
Patients with hypertensive cardiovascular disease (16)	9	56	5	31	11	69	3	19
Patients with rheumatic heart disease (12)	6	50	4	33	7	58	3	25

Although no definite correlation is demonstrated between abnormal physiological function and an abnormal ballistocardiogram in the present study, the possibility is not excluded that an abnormal tracing in an otherwise normal individual may indicate occult cardiac dysfunction, especially in an individual under the age of 50 years The ballistocardiogram is demonstrated to have some value as a screening procedure Abnormal ballistocardiograms were present in 35% of the group with arteriosclerotic heart disease Of the group with arteriosclerotic heart disease, 77% had abnormal resting electrocardiograms, 65% had abnormal response of blood pressure to exercise, and 40% had abnormal electrocardiographic response to exercise

Subjects with Hypertension.—The 16 subjects with hypertension were compared with the strictly normal control group, and no striking differences in the previously listed physiological functions were observed. This is not surprising, since these patients had relatively mild hypertension. Oxygen utilization increased less during exercise in the hypertensive group (1.54±0.50 ml. of oxygen per 100 ml. of air) than in the controls (1.92±0.53 ml. of oxygen per 100 ml. of air). The difference is of borderline significance (p=<0.01). Because of slightly higher ventilation both at rest and during exercise, however, there was no significant difference in oxygen consumption at rest or during exercise. As might be expected, there was a high percentage of abnormal blood pressure responses in this group (56%), as shown in table 4.

Subjects with Rheumatic Heart Disease.—The 12 subjects with rheumatic heart disease showed the same physiological abnormality which was noted in those with arteriosclerotic heart disease. Oxygen utilization and oxygen consumption during exercise were less, and oxygen consumption during exercise was less in relation to oxygen debt, than in the strictly normal control group. These differences were all significant (p=<0.001). The data are presented in table 5. None of the other physiological values differed significantly from those of the control group. Abnormal blood pressure responses and electrocardiographic changes occurred about as frequently as in the patients with arteriosclerotic heart disease (table 4).

TABLE 5.—*Patients with Rheumatic Heart Disease Compared with Normal Control Subjects**

		85 Normal Controls Mean±S.D.	12 Patients with Rheumatic Heart Disease Mean±S.D.	p
During exercise	Ventilation, liters/min.	18.0 ± 7.5	20.8 ± 3.5	<0.4
	Oxygen utilization, ml. O₂/100 ml. air	5.12 ± 0.65	4.19 ± 0.61	<0.001
	Net oxygen consumption, ml./min.	1,185 ± 200	936 ± 150	<0.001
Ratio oxygen consumption during exercise/oxygen debt		1.16 ± 0.38	0.72 ± 0.28	<0.001

* Groups compared by *t* test.

Comment

The standard Master two-step test has been used, under careful medical supervision, for the evaluation of exercise tolerance in 1,150 patients with known heart disease, of whom 650 had arteriosclerotic heart disease, during the past six years at the Work Classification Clinic of the Cleveland Area Heart Society. The test has not been used in the presence of symptoms or electrocardiographic evidence of a changing myocardial process during the preceding two months. Patients have been instructed to stop the exercise if chest discomfort develops. No adverse reactions have occurred. In our experience the test has been highly informative as to the limits of exertion suitable for a given patient.

The sound physiological basis of the two-step test is demonstrated by the fact that the prescribed number of trips calls for a total energy expenditure equivalent to 6.8 times resting oxygen consumption and that this energy expenditure does not vary significantly with age, weight, or disease state. This brief, moderately severe exercise is performed with approximately equal 'mechanical efficiency' by normal controls and patients with heart disease, but a decline in 'mechanical efficiency' is observed in the older subjects.

This study shows that in the response to this exercise there may be significant changes in physiological function, as well as in the electrocardiogram, distinguishing the normal from the abnormal. The most significant changes are a delayed return of blood pressure to resting levels and a shift of oxygen consumption, such that the majority occurs in the recovery period rather than during exercise. In general, the patient with heart disease displays a lag in the mobilization of metabolic reserves.[7] The failure to increase oxygen utilization normally during exercise must be due either to insufficient cardiac output or to a smaller arteriovenous oxygen difference. Pulmonary factors are not considered here because none of the patients had significant pulmonary disease and none had congestive cardiac failure. There is reason to believe that limited cardiac output is primarily responsible, since the lowest average value for oxygen utilization during exercise (3.87 ml. of oxygen per 100 ml. of air) was observed in six patients with mitral stenosis, in whom a mechanical obstruction to flow is known to be present. If, therefore, the assumption is made that failure to increase the cardiac output normally is at fault, then, since a high pulse rate is characteristic of patients with heart disease during exercise,[7] the patients must have a limited stroke volume, either because of myocardial weakness or because of mechanical obstruction to blood flow. If this is the case, then, in order to supply the requisite total amount of oxygen to the exercising muscles, the cardiac output must remain elevated longer during the recovery period—a factor possibly contributing to the delayed return of blood pressure to resting levels. Another aspect of this delayed metabolic adaptation is the previously demonstrated tendency of patients with heart disease to have higher pulse rates during exercise and to return to resting pulse rates less rapidly than normal.[8] This last feature was not observed in the present study because pulse rate was not measured during exercise and because the single observation of pulse rate two minutes after exercise, prescribed by Master, misses the significant early decline. These various abnormalities in rate of change of physiological function are particularly well brought out by a relatively brief, vigorous exercise, such as the two-step test, whereas they may escape notice in the more usual type of 'steady-state' exercise study in which the initial and postexercise adjustment phases are excluded.

The current use of the two-step test solely for diagnosis of coronary artery disease is not supported by the present study. Neither abnormal electrocardiographic changes nor abnormal physiological responses (delayed fall of blood pressure after exercise and low ratio of oxygen consumption during exercise to oxygen debt) are specific for coronary artery disease, since they occur with almost equal frequency in patients with hypertensive cardiovascular disease, in those with rheumatic heart disease, and, to a lesser extent, in otherwise normal subjects. On the other hand, the test, regarded as a measured stress, is a potential source of more clinical information than is at present recognized It is probable that the abnormal electrocardiographic changes are related to relative coronary insufficiency, whether due to coronary arteriosclerosis, disproportion of hypertrophied muscle to coronary bed, or mechanical factors, such as aortic insufficiency The physiological changes are probably related to myocardial weakness and insufficient cardiac output The clinician can readily take advantage of this additional information by the simple procedure of taking blood pressures before and two minutes after the usual step test In addition, a more detailed observation of the postexercise pulse rate than that originally used by Master would probably give further information This can be obtained easily by taking a continuous electrocardiogram for two minutes after exercise The exact significance of the early pulse-rate changes after this exercise requires further investigation Studies of the proportion of oxygen consumption during exercise to that during recovery would also be useful, although not so readily available as pulse rate and blood pressure These observations give a more complete picture of an individual patient's reaction to the stress of the step test

We return, then, to the original question How severe an exertion does the step test represent, and how does it compare with a patient's ordinary activities? Table 6 summarizes measurements made by us and by other investigators In this laboratory, the step test has been specifically compared with climbing and descending standard stairs at a rate vertically of 20 ft per minute (two flights per minute) The energy cost of these two activities is the same except for minor differences which may be attributed to more frequent turning involved in the step test The step test is moderately severe exercise, demanding 45% of the mean maximal oxygen intake determined by Taylor and associates [9] for young men and 38% of the highest measured oxygen consumption [10] It is, of course, a brief exertion in which a steady state is not achieved It may be compared, as the table shows, with push-ups or with deep knee bends It calls for a rate of energy expenditure much greater than the average sustained rate required by certain representative industrial jobs which require moderate exertion [11] and significantly greater than the maximum spurts of exertion involved in these jobs With this perspective on the degree of stress represented by the step test, plus observation of the patient's response to the test in terms of blood pressure, pulse rate, and electrocardiographic changes, the physician has at hand a rational means of judging an individual patient's fitness for various activities Studies are in progress which will give a more complete description of the energy requirements of a range of occupations, so that the significance of a patient's response to measured stress will be further enlarged

Summary and Conclusions

The energy cost of the Master two-step test has been measured in 71 patients with heart disease and a group of 126 control subjects The test calls for a net rate of energy expenditure of 1,485± 244 ml of oxygen per minute of exercise, or 6 8 times resting oxygen consumption (8 5 calories per minute) This is a rate of energy expenditure equal to ordinary activities, such as stair climbing, and greater than the peak requirements of certain industrial jobs, such as tool grinding Patients with arteriosclerotic heart disease and rheumatic heart disease show, on the average, a failure to increase oxygen utilization to normal levels during this exercise, resulting in a lower oxygen consumption during exercise and the deferring of a greater part of the cost of exercise to the recovery period Clinically, a better discrimination betwen normal subjects and patients with heart disease may be achieved by observing the rate of recovery of blood pressure and, probably, pulse rate than by relying on electrocardiographic changes alone Abnormal ballistocardiograms taken at rest are more frequent in otherwise normal subjects above the age of 50 and in patients with arteriosclerotic heart disease, but they do not appear to be related to abnormal physiological response to exercise

TABLE 6 —*Energy Cost of Various Activities*

	Energy Cost	
Activity	Active Oxygen Consumption Resting Oxygen Consumption	Calories/Min
Straight leg raising exercise (20/min)*	3 5	4 8
Walking slowly (2 3 mph)†	2 6	3 5
Walking moderately fast (4 2 mph)†	4 7	6 2
Walking fast (4 8 mph)*	6 2	8.0
Climbing and descending stairs (2 flights/min)§	6 4	8 0**
Master two step test	6 8	8 5**
Deep knee bend exercise (33/min)*	6 7	9 2
Push up exercise (33/min)*	7 5	10 4**
Shoveling snow (moderately heavy 10 shovels/min)‖	8 8	11 4
Running (7 5 mph)¶	9 0	11 7
Maximum exertion by trained athletes (2 mile run horizontal skiing)#	21 2	26 5
Janitor§		
Average for 8 hr working day	1 8	2 5
Maximum exertion (running scrub machine)	2 8	3 8
Tool grinder§		
Average for 8 hr working day	1 6	1 9
Maximum exertion (grinding and filing)	2 4	2.8
Supervisor		
Average for 8-hr working day	1 7	2 0
Maximum exertion (walking and inspecting)	3 0	3 7

* Data from Weiss R A and Karpovich P V *Arch Phys Med* 28 447 454 (July) 1947

† Data from Benedict F G and Murschhauser H Energy Transformations During Horizontal Walking Publication 231 Washington D C Carnegie Institution of Washington 1915

‡ Data from Passmore and Durnin [11a]

§ Data from Ford and Hellerstein [11b]

‖ Data from Karpovich P V Physiology of Muscular Activity ed 4 Philadelphia W B Saunders Company 1953 p 104

¶ Data from Edholm O G and others *Brit J Nutrition* 9 286 300 1955

# Data from Christensen and Hogberg and Robinson and others [10]

** Cost includes exercise and recovery other figures are for steady state

The Master two-step test is demonstrated to have a sound physiological basis and to impose an equal energy demand in patients of different age and weight The standard test may be safely used under careful supervision in patients with known heart disease who are in stable condition More complete observation of a patient's physiological response to this measured stress should provide a sound basis for counseling in regard to work and the ordinary activities of life

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IMMUNIZATION OF COLLEGE STUDENTS AGAINST DIPHTHERIA

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• *In order to determine the extent of local and general reactions after immunization to tetanus and diphtheria, 2,974 university students were reexamined 48 hours after the first dose The tetanus toxoid (alum precipitated) was given in doses of 0 5 cc intramuscularly to those students who had reacted negatively in the Shick test, those who had reacted positively to the Shick test received intramuscularly 0 5 cc of alum precipitated combined diphtheria and tetanus toxoid Both local and general reactions were more frequent in women than in men For the group as a whole, 70 4% of those receiving tetanus toxoid were found to have local reactions as compared with 51 7% of those receiving the combined tetanus diphtheria toxoid, general reactions, however, were significantly more frequent after the combined tetanus diphtheria toxoid than after the tetanus toxoid The reactions are not severe enough to militate against the routine use of these vaccines in students entering college*

Numerous surveys showing the high susceptibility of adults to diphtheria[1] and the increasing incidence of cases of diphtheria among these older persons[2] have stimulated interest in finding a method of immunizing adults against diphtheria without producing severe local or constitutional reactions Pappenheimer and co-workers[3] as well as others have shown that such reactions may be reduced by Schick testing and immunizing only the Schick-positive group For a mass community immunization program, however, preliminary Schick testing is cumbersome and practically impossible to carry out

During recent years much research has been done[4] to determine the smallest dose of diphtheria toxoid which will produce an antibody response adequate to give protection but without producing severe reactions Some of these studies have shown that as little as 1 Lf dose (the amount of diphtheria toxin which in the shortest time produces precipitation when mixed with 1 standard unit of antitoxin) of diphtheria toxoid, if precipitated or adsorbed, will produce an adequate immune response in most instances without causing reactions Until very recently, however, no diphtheria toxoid of low potency has been available for general use for the immunization of adults While the immunization of adults with the use of standard diphtheria toxoid without preliminary Schick testing is not recommended, adults with a positive Schick test may be immunized with standard diphtheria toxoid with little more chance of severe reaction than that after smallpox vaccination or tetanus immunization[5]

At the University of Minnesota a complete medical examination is required of all new students on admission Since 1935 a Schick test and control test have been included as a part of the examination Those students found to be Schick positive have been advised to be immunized Each year over 90% of the Schick-positive students have accepted the immunization

Since 1935, also, the standard dose of alum-precipitated diphtheria toxoid has been used as the immunizing agent In 1935 the control test used was an intradermal injection of 0 1 cc of a 1 20 dilution of toxoid according to the technique of Moloney and Fraser[6] A report of the experience of one of us (R E B) and a co-worker with the Moloney test in 1935[7] showed that the number of students having local and/or constitutional reactions was higher in those with a positive Moloney test but that this test was by no means specific in selecting students who would have a reaction Since none of the reactions to

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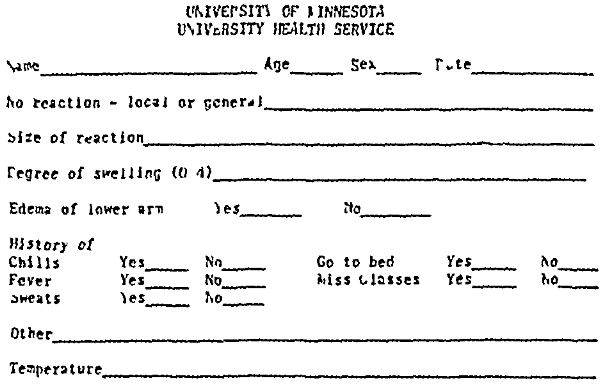
From the University Health Service, University of Minnesota alum-precipitated diphtheria toxoid in that year were of such severity as to cause any concern, beginning in 1936 heated toxin has been used as the control for the Schick test and the Moloney test discontinued

In the fall of 1951, immunization against tetanus was included in our program All new students entering the university found to be Schick positive were immunized with two doses of alum-precipitated combined diphtheria and tetanus toxoid Those students with a negative Schick test were given two doses of an alum-precipitated tetanus toxoid It has been our impression since that time that there was little difference between the local or constitutional reactions seen in students receiving tetanus toxoid alone as compared to those receiving the combined diphtheria-tetanus toxoid To determine whether this impression was correct a study was made in the fall of 1954 to determine as accurately as possible the extent of local and constitutional reactions in students after the first dose of either the tetanus toxoid or the combined diphtheria and tetanus toxoid


UNIVERSITY OF MINNESOTA
UNIVERSITY HEALTH SERVICE

Name__________ Age_____ Sex_____ Date__________

No reaction - local or general__________

Size of reaction__________

Degree of swelling (0 4)__________

Edema of lower arm Yes______ No______

History of
Chills Yes_____ No_____ Go to bed Yes_____ No_____
Fever Yes_____ No_____ Miss Classes Yes_____ No_____
Sweats Yes_____ No_____

Other__________

Temperature__________

Fig 1—Form for recording local and constitutional reactions in students receiving alum-precipitated tetanus toxoid and in those receiving alum-precipitated combined diphtheria and tetanus toxoid

Plan of Study

Each student receiving either of the immunizing agents was asked to return to the health service 48 hours later At that time the site of the injection was inspected, the size of any local reaction measured in centimeters, and the degree of swelling noted All measurements were made by two nurses who had been carefully instructed in the procedure to be used At the same time each student was queried by the nurse as to whether he had had any signs of a constitutional reaction, such as chills, fever, or sweating episodes, and whether he had gone to bed because of the symptoms or had missed classes The information obtained from the student was recorded on the form shown in figure 1

Each student who reported to the nurse any kind of constitutional reaction was then seen by one of two physicians His temperature was taken, and a more complete history of the symptoms was obtained Any further examination indicated was done If the physician felt that the student needed therapy for the reaction, he was referred to one of the physicians in the health service dispensary for care

A total of 3,560 students received either the tetanus toxoid or the combined diphtheria-tetanus toxoid Of this number, 2,974, or 83 5%, returned in 48 hours for observation and are included in the study Tetanus toxoid was given to 1,583 of the students and the combined diphtheria-tetanus toxoid to 1,391

Results of Schick Test

A Schick test consisting of an intradermal injection of 0 1 cc of commercially prepared Schick testing material and a control test consisting of the same material which had been heated to inactivate the toxin were given to each student Both tests were read at the end of 72 hours and again at the end of 7 days In a small percentage of cases, either the 72-hour reading or the 7-day reading was missed Seventy-five cases in which the control test was read only at the end of 7 days or in which the Schick test was read only at the end of 72 hours are not included

Of the total group of 2,899 students in whom both the Schick and control tests were read at 72 hours and at 7 days, 47 2% had a positive Schick test and 52 8% a negative Schick test (table 1) No significant sex differences were found except in the age group 20-24 years, where the percentage of positive Schick tests was significantly higher for men than for women

For the group as a whole, the percentage of positive reactors was significantly higher in those students 20 years of age and over than in those under 20 years These studies substantiate other studies which show a high degree of susceptibility in the adult population While we have no information as to how many of these students entering the university had been immunized against diphtheria previously, we do know that in the state of Minnesota, from which the majority of these students come, diphtheria immunization has long been accepted by the public and vigorously promoted by the state health department It is significant, therefore, that 42 3% of the students in the 16-to-17-year age group are susceptible to diphtheria

TABLE 1—*Reaction of Students by Sex and Age to Shick Test*

	Students		Negative Reactors		Positive Reactors	
Sex	Age Group, Yr	No	No	%	No	%
Male	16-17	200	112	56 0	68	44 0
	18-19	853	522	61 2	331	38 8
	20-24	449	163	36 3	286	63 7
	25 29	149	59	39 6	90	60 4
	30 and over	62	19	30 7	43	69 3
Total		1 713	875	51 1	838	48 9
Female	16-17	207	123	59 4	84	40 6
	18-19	696	388	55 8	308	44 2
	20-24	194	107	55 1	87	44 9
	25 29	36	18	50 0	18	50 0
	30 and over	53	20	37 7	33	62 3
Total		1 186	656	55 3	530	44 7
Male and Female	16 17	407	235	67 7	172	42 3
	18-19	1 549	910	58 8	639	41 2
	20-24	643	270	42 0	373	58 0
	25-29	185	77	41 6	108	58 4
	30 and over	115	39	33 9	76	66 1
Total		2 899	1 531	52 8	1 368	47 2

Immunization

Those students found to have a positive Schick test, regardless of reaction to the control test, were immediately given intramuscularly 0 5 cc of alum-precipitated combined diphtheria and tetanus toxoid Those with a negative Schick test were given intramuscularly 0 5 cc of alum-precipitated tetanus toxoid At the time of the injection each student was given a printed slip asking him to return to the health service at the end of 48 hours

TABLE 2—*Number and Percentage of Students by Age and Sex with Local and Constitutional Reactions to Either Tetanus Toxoid or Combined Diphtheria-Tetanus Toxoid*

		Tetanus Toxoid					Diphtheria Tetanus Toxoid				
			Local Reaction		Constitutional Reaction			Local Reaction		Constitutional Reaction	
Sex	Age Group Yr	No in Study Total	No	%	No	%	No in Study Total	No	%	No	%
Male	16-17	115	68	59 1	9	7 8	86	36	41 9	6	7 0
	18 19	527	310	58 8	23	4 4	343	128	37 3	19	5 5
	20-24	169	84	49 7	13	7 7	291	103	35 4	22	7 6
	25 29	59	34	57 6	6	10 2	93	38	40 9	21	22 6
	30 and over	20	10	50 0	8	40 0	42	21	50 0	16	38 1
Total		890	506	56 9	59	6 6	855	326	38 1	84	9 8
Female	16-17	131	114	87 0	18	13 7	87	68	78 2	17	19 5
	18-19	406	361	88 9	58	14 3	313	222	70 9	56	17 9
	20-24	113	96	85 0	17	15 0	85	60	70 6	12	14 1
	25-29	21	17	81 0	3	14 3	18	14	77 8	2	11 1
	30 and over	22	20	90 9	2	9 1	33	29	87 9	11	33 3
Total		693	608	87 7	98	14 1	536	393	73 3	98	18 3
Total		1 583	1 114	70 4	157	9 9	1 391	719	51 7	182	13 1

Reactions to Immunizing Agents—Table 2 presents the number and percentage of students by age and sex with local and constitutional reactions to either the tetanus toxoid or the combined diphtheria-tetanus toxoid For the group as a whole, 70 4% of those receiving tetanus toxoid were found to have local reactions, compared to 51 7% of those receiving the combined diphtheria-tetanus toxoid This significant difference was found in both men and women

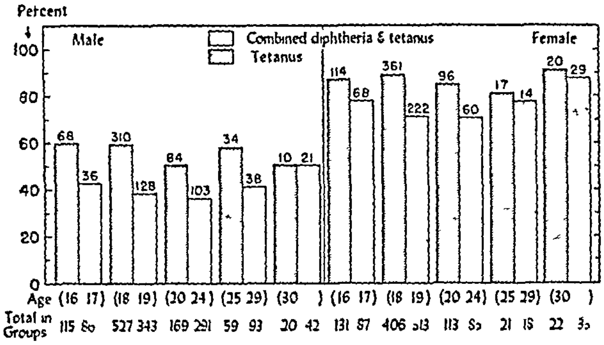


Fig 2—Number and percentage of students by age and sex with local reactions to either combined diphtheria-tetanus toxoid or tetanus toxoid

A significantly lower percentage of men had local reactions to either tetanus toxoid or the combined diphtheria-tetanus toxoid than did women (table 2 and fig 2) In contrast to the higher percentage of local reactions among those receiving the tetanus toxoid, there was a significantly higher percentage of constitutional reactions in those receiving the combined diphtheria-tetanus toxoid As was the case with local reactions, the constitutional reactions were more common in women than in men (table 2 and fig 3)

The percentage of local and constitutional reactions to either the tetanus or the combined diphtheria-tetanus toxoid showed no difference in age groups, with the exception that the number of constitutional reactions to tetanus toxoid was significantly higher in men over 30 years of age than in any of the groups under 30 years Likewise, constitutional reactions to combined diphtheria-tetanus toxoid were significantly more common in men over 25 years of age than in the groups under 25 Figures 2 and 3 show these differences It is difficult to explain why local reactions should be more frequent in women than in men or more frequent in students receiving tetanus toxoid than in those receiving the combined diphtheria tetanus toxoid

Size of Local Reactions—The local reactions after either of the immunizing agents were recorded according to the amount of redness in centimeters at the site of injection and to the amount of swelling present Any reaction in which the maximum and minimum diameters of redness were 3 by 3 cm or less was recorded as one plus, a reaction in which the diameters of redness were 3 by 4 cm or more was recorded as two plus The degree of swelling was recorded as none, one plus (indicating a very slight amount of swelling, either visible or palpable), or two plus (if the swelling was moderate or marked in degree)

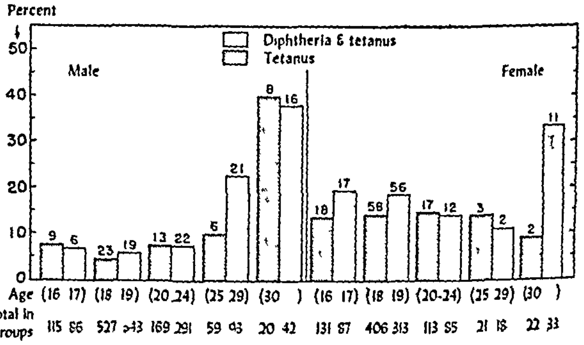


Fig 3—Number and percentage of students by age and sex with constitutional reactions to either combined diphtheria tetanus toxoid or tetanus toxoid

Table 3 presents the local reactions by sex to both antigens by size of reaction and by degree of swelling This again shows consistently not only the higher percentage of local reactions due to tetanus toxoid but also a higher percentage of more severe reactions (two plus) as shown by the size of redness at the site of injection and by the degree of swelling In general, all degrees of local reaction were higher in women than in men, the only exception being in those with two plus swelling

Although the number reporting constitutional reactions of different types show some differences according to the type of immunizing material as well as some age and sex differences, none of these are statistically significant at the 1% level Fewer than 2% of the students receiving tetanus toxoid stated that they had been ill enough to go to bed, and less than 4% of those receiving the diphtheria-tetanus toxoid answered this question affirmatively In answer to the question as to whether they had missed classes, 37, or 2 5%, of the diphtheria-tetanus group stated they had missed classes, while only 16, or 1 0%, of the tetanus group stated they had missed classes This difference, again, is not statistically significant at the 1% level

TABLE 3—*Local Reaction by Sex to Both Tetanus Toxoid and Diphtheria-Tetanus Toxoid by Size of Area of Redness at Site of Injection and by Degree of Swelling*

	Total in Study		Size of Redness						Degree of Swelling					
			None		+*		++*		None		+†		++†	
Sex	Tetanus No	Diphtheria Tetanus No	Tetanus, %	Diphtheria Tetanus %	Tetanus %	Diphtheria Tetanus %	Tetanus %	Diphtheria Tetanus %	Tetanus %	Diphtheria Tetanus %	Tetanus %	Diphtheria Tetanus %	Tetanus %	Diphtheria Tetanus %
Male	890	855	48 2	61 0	10 3	8 3	46 5	29 8	47 1	68 8	48 3	29 7	4 6	1 5
Female	693	536	12 3	20 7	20 6	19 2	67 1	54 1	19 8	31 5	76 5	63 1	3 7	5 4
Total	1 583	1 391	29 6	48 3	14 9	12 5	55 5	39 2	35 1	54 4	60 7	42 6	4 2	3 0

* + maximum and minimum diameters of area of redness 3 by 3 cm or less ++ diameters 3 by 4 cm or more

† + slight amount either visible or palpable ++ moderate or marked

TABLE 4—*Number and Percentage of Students by Age and Sex with Certain Types of Constitutional Reactions to Both Tetanus Toxoid and Combined Diphtheria-Tetanus Toxoid*

Material	Age Group Yr	Total Immunized No	Constitutional Reactions		History of Chills Fever or Sweats or Combination		Nausea Vomiting Headache or Other or Combination		Temperature over 100 F (37 7 C)	
			No	%	No	%	No	%	No	%
Tetanus Toxoid										
Male	16-17	115	9	7 8	2	1 7	8	7 0	0	0
	18-19	527	23	4 4	7	1 3	22	4 2	3	0 6
	20-24	169	13	7 7	10	5 9	10	5 9	1	0 6
	25-29	59	6	10 2	5	8 5	6	10 2	0	0
	30 and over	20	8	40 0	7	35 0	4	20 0	0	0
Subtotal		890	59	6 6	31	3 5	50	5 6	4	0 5
Female	16 17	131	18	13 7	11	8 4	15	11 5	0	0
	18-19	406	58	14 3	35	8 6	48	11 8	2	0 5
	20-24	113	17	15 0	11	9 7	12	10 6	0	0
	25-29	21	3	14 3	2	9 5	3	14 3	0	0
	30 and over	22	2	9 1	1	4 6	2	9 1	0	0
Subtotal		693	98	14 1	60	8 7	80	11 5	2	0 3
Total		1 583	157	9 9	91	5 8	130	8 2	6	0 4
Diphtheria Tetanus Toxoid										
Male	16 17	86	6	7 0	2	2 3	5	5 8	0	0
	18-19	343	19	5 5	13	3 8	19	5 5	1	0.3
	20-24	291	22	7 6	17	5 8	15	5 2	0	0
	25 29	93	21	2 6	18	19 4	17	18 3	0	0
	30 and over	42	16	38 1	14	33 3	14	33 3	1	2.4
Subtotal		855	84	9 8	61	7 5	70	8 2	2	0 2
Female	16 17	87	17	19 5	7	8 1	17	19 5	1	1 2
	18 19	313	56	17 9	41	13 1	53	16 9	0	0
	20-24	85	12	14 1	7	8 2	12	14 1	0	0
	25-29	18	2	11 1	2	11 1	2	11 1	0	0
	30 and over	33	11	33 3	10	30 3	7	21 2	0	0
Subtotal		536	98	18 3	67	12 5	91	17 0	1	0 2
Total		1 391	182	13 1	131	9 4	161	11 6	3	0 2

Constitutional Reactions—Table 4 presents by age and sex the number and percentage of students with certain types of constitutional reactions to both the alum-precipitated tetanus toxoid and the alum-precipitated diphtheria-tetanus toxoid When all types of constitutional reactions are combined, a higher percentage (13 1) of the group receiving diphtheria-tetanus toxoid reported constitutional reactions than did those receiving the tetanus toxoid (9 9%) Although the number reporting constitutional reactions

It is appreciated that these data on constitutional reactions are highly subjective Whether a student missed classes would depend, among other things, on when he had his classes We know that some people will go to bed when feeling slightly indisposed, while others will not However, for the entire group the significantly higher percentage of constitutional reactions in those receiving diphtheria-tetanus toxoid as compared with those receiving tetanus toxoid is probably real

While it is well known that a severe local reaction to these immunizing agents is not necessarily associated with constitutional symptoms, we found a significantly higher percentage of students with more severe local reactions having constitutional reactions after receiving diphtheria-tetanus toxoid Table 5 presents these findings While 5 4% of the total group with no redness at the site of injection reported some constitutional symptoms, 22 6% of those with the greatest area of redness gave a history of constitutional reactions The same relationship is seen in comparing the degree of swelling with constitutional reactions

Table 5—*Relation of Local to Constitutional Reactions in Students Receiving Diphtheria-Tetanus Toxoid*

Sex	Local Reactions: Redness at Site of Injection: Degree*	Total No	% with Constitutional Reactions	Swelling: Degree†	Total No	% with Constitutional Reactions
Males	None	529	5 7	None	588	5 1
	+	71	9 9	+	254	19 7
	++	255	18 4	++	13	30 8
Total		855	9 8		855	9 8
Females	None	143	4 2	None	169	5 3
	+	103	15 5	+	338	23 4
	++	290	26 2	++	29	34 5
Total		536	18 3		536	18 3
Males and females	None	672	5 4	None	757	5 2
	+	174	13 2	+	592	21 8
	++	545	22 6	++	42	33 3
Total		1 391	13 1		1 391	13 1

* + maximum and minimum diameters of area of redness 3 by 3 cm or less ++ diameters 3 by 4 cm or more

† + slight amount either visible or palpable ++ moderate or marked

The relationship between reaction to the Schick control and constitutional reactions following the alum-precipitated diphtheria-tetanus toxoid is presented in table 6 While only 12% of the Schick-positive, control-negative group reported constitutional reactions, one-third of the Schick-positive group who also had a positive control test reported constitutional reactions Although the total number in the Schick-positive, control-positive group is small, this is a statistically significant difference The 206 students in whom the reaction to the control test was unknown are no different from the control-negative group

Comment

It had been our impression that few students have enough discomfort from their toxoid injections to warrant their reporting to our dispensary for advice or treatment, this in spite of the fact that students are urged to and do come in for minor complaints To test the accuracy of this impression, the dispensary records were reviewed for the four-year period beginning July 1, 1951, which was the year we first made tetanus toxoid administration a routine part of our entrance physical examinations

During the four-year period, 24,448 injections of alum-precipitated tetanus toxoid were given, and 48 students reported to the dispensary for advice or treatment of reactions following these injections, an incidence of 1 96 "spontaneous" visits per 1,000 tetanus-toxoid injections Actually this figure is high, since over half of these dispensary visits occurred during the year of the study, which comprises the main body of this report, when the students were asked to return at the end of 48 hours for inspection It is likely that some of those referred to the dispensary by the physician making the inspection would not have come in otherwise

Of these 48 students reporting to the dispensary because of reactions from tetanus toxoid, 5 were hospitalized for a total of six days Five others developed antigenic cysts at the site of injection Comparable figures for alum-precipitated combined diphtheria-tetanus toxoid are as follows 15,421 injections were followed by 46 dispensary visits (2 98 visits per 1,000 injections), 2 patients were hospitalized for one day each, and 2 developed antigenic cysts

It may be added that during this same four-year period, 58 students reported to the dispensary complaining of reaction to smallpox vaccination These were primary reactions and severe accelerated reactions to the vaccine This interested us, because it is often assumed that practically everyone is adequately protected against smallpox before reaching college age Four of these 58 were hospitalized for a total of eight days, including one who had an autoinoculation to the eyelid and was in the hospital 5 days

Summary

Of young adults entering the University of Minnesota in the fall of 1954, 47 2% had a positive Schick test, this in spite of the fact that in this state diphtheria immunization of children has been actively promoted for many years The rate of Schick-positive students was higher for those over 20 years of age than for those under 20 It was also higher for men in the age group 20 to 24 years than for women in the same age group Local reactions occurred in 70 4% of those receiving alum-precipitated tetanus toxoid and in 51 7% of those receiving alum-precipitated combined diphtheria and tetanus toxoid On the other hand, the incidence of general reactions was higher (13 1%) for the combined toxoid than for tetanus toxoid (9 9%)

Table 6—*Relation of Schick Control to Constitutional Reactions in Students Receiving Diphtheria-Tetanus Toxoid*

Sex	Schick Positive Control Negative Group: Total No	Constitutional Reactions: No	%	Schick Positive Control Positive Group: Total No	Constitutional Reactions: No	%	Schick Positive Control Unknown Group: Total No	Constitutional Reactions: No	%
Males	652	55	8 4	33	9	27 3	147	19	12 9
Females	434	75	17 3	30	12	40 0	59	11	18 6
Total	1 086	130	12 0	63	21	33 3	206	30	14 6

Both local and constitutional reactions were more common in women than in men for each of the two vaccines used, and, in general, the local reactions were more severe in women than in men Little age difference was noted in the matter of reactions, except that constitutional symptoms after the administration of tetanus toxoid were more common in men over 30 years of age than in those under 30 and constitutional reactions to combined diphtheria and tetanus toxoid were more common in men over 25 years of age than in men under 25 As would be expected, constitutional symptoms were more apt to occur when the local reaction was more marked, and, in the case of diphtheria-tetanus toxoid, in those who had a positive Schick-control test Only 5 5% of Schick-positive students were also definitely control positive Although some reaction occurs in a high percentage of young adults who receive alum-precipitated tetanus toxoid or alum-precipitated combined diphtheria and tetanus toxoid, these reactions are not severe enough to militate against their routine use in students entering college

University of Minnesota (14) (Dr Boynton)

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MECAMYLAMINE (INVERSINE) IN THE TREATMENT OF HYPERTENSION

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• *The effectiveness of combining reserpine with mecamylamine in treating hypertension was tested in 75 patients, all of whom had sustained blood pressure levels above 150/100 mm Hg before treatment A comparison was made between one group of 17 patients receiving mecamylamine alone and another group of 58 receiving mecamylamine with reserpine The reserpine was given in amounts of 1 mg daily by mouth in four equally divided doses The optimal dosage of mecamylamine was determined by a set dose titration procedure for each patient, beginning with 2 5 mg twice a day the average dose of mecamylamine for those patients who did respond to the drug alone during prolonged treatment was 34 mg daily There were some patients who did not respond satisfactorily to double this dose The data include the average of all blood pressure levels and pulse rates obtained weekly or biweekly for a period of three months approximately one year after beginning therapy with mecamylamine The patient was described as responding to the treatment if it brought about a fall of 20 mm Hg or more in his mean blood pressure or a reduction to the normotensive level, taken as below 150/100 mm Hg The over all response rate for the group receiving mecamylamine alone was 57%, the corresponding figure for the group receiving the combination of drugs was 92% The combination was therefore more effective than the mecamylamine alone The most frequent side effects of prolonged administration of mecamylamine were xerostomia, general weakness, and constipation the most frequent complaints when the combination was taken for many months were impotence, excessive sedation, and blurring of vision*

The most effective therapeutic regimen for reducing blood pressure level in patients with moderate to severe hypertension appears to be the use of ganglionic blocking agents in combination with a rauwolfia alkaloid[1] The concurrent administration of a rauwolfia alkaloid, by depressing the sympathetic nervous system, partially stabilizes the blood pressure response to ganglionic blockade, allows a reduced dosage of the ganglionic blocking agent, and, thereby, decreases the severity and number of the side-reactions Some of the more common side-reactions, such as constipation and postural dizziness, are due to the pharmacological action of these drugs and result most frequently when large doses of the blocking agents are required in order to obtain an effective reduction in the blood pressure level in patients with severe disease Fluctuations in the response of the blood pressure to the ganglionic blocking agents that are currently available occur, in part, as a result of the variability of absorption when these drugs are administered orally Recently, mecamylamine (Inversine) hydrochloride, a long-acting ganglionic blocking agent, has become available for clinical trial[2] It is a secondary amine (rather than a quaternary compound) and is completely absorbed from the gastrointestinal tract Because of this complete absorption, the response after both oral and parenteral administration is essentially the same, in contrast to the response with other ganglionic blocking agents

The results of a preliminary study by us indicated that the administration of mecamylamine in combination with a rauwolfia alkaloid was a very effective

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Dr Moyer is now Chairman of the Department of Internal Medicine Hahnemann Medical College and Hospital Philadelphia method for reducing the blood pressure level in patients with moderate to severe hypertension and that probably the drug is more effective than a combination of rauwolfia and other ganglionic blocking agents.[2b] These preliminary conclusions were reached after a period of only three to four months of observations. Although over 90% of the patients responded with a significant decrease in their blood pressure levels, it was difficult to evaluate the other beneficial effects of hypotensive therapy, such as symptomatic improvement of headache and angina, after such a brief period of time. Seventy-five patients, however, have now received treatment with mecamylamine alone or in combination with a rauwolfia alkaloid for one to two years or longer, thus, affording us the opportunity to make observations over a longer follow-up period. These observations form the basis of the current report. *An attempt has been made to analyze and* compare the results of immediate and long-term administration of mecamylamine in the treatment of hypertension.

Methods and Materials

The series in this study consisted of a group of 75 patients with moderate to severe hypertension who were treated on an outpatient basis in the hypertensive clinics of the Jefferson Davis (city-county) and Hermann (private) hospitals and included also a number of patients from our private practices, the majority of whom were treated entirely as outpatients. The criterion used for including the patients in this study was a sustained blood pressure level above 150/100 mm Hg during the control period in both the upright and supine positions. Control observations were made by taking the average of a minimum of four separate blood pressure and pulse rate determinations in both the supine and upright positions while the patients received only placebo over a period of three to four weeks. The observations after the administration of the drug are the averages of all blood pressure levels and pulse rates taken weekly in both the upright and supine positions or, in some cases in which the condition was well controlled, biweekly. The therapeutic dose of mecamylamine previously had been established for each patient using the method shown in table 1.

TABLE 1.—*Data Showing Method of Determining Optimal Dose of Mecamylamine*

Week	Dose of Mecamylamine Mg*			
	7 a m	12 Noon	5 p m	10 p m
1st	2.5		2.5	
2nd	5.0		5.0	
3rd	5.0	5.0	5.0	5.0
4th	5.0	10.0	5.0	5.0
5th	5.0	10.0	10.0	5.0
6th	5.0	15.0	10.0	5.0
7th	10.0	15.0	10.0	5.0

* Dose was not increased above that required for adequate blood pressure regulation.

An initial dosage of 5 mg of mecamylamine given orally twice a day (after breakfast and supper) was empirically chosen, but this proved to be excessive in *some cases, resulting in marked orthostatic hypotension* and numerous side-reactions. Subsequently, 2.5 mg twice a day was found to be a more suitable starting dosage. This dosage was then increased by steps until an adequate blood pressure response was obtained using the method of dose determination shown in table 1. In patients who received combined therapy, a standard daily dosage of 1 mg of reserpine in four equally divided doses was given orally in addition to the optimal dose of mecamylamine. The drugs were given after meals in order to allow a more prolonged and constant absorption. The upright blood pressure and symptoms resulting from drug administration were used as a guide to weekly changes in dosage, so as to minimize excessive orthostatic responses and untoward effects. Each patient in the study has been followed for one year or more after beginning therapy with mecamylamine alone or in combination with reserpine. None of the patients received any other antihypertensive drug.

Two post-therapy observation periods are compared. The D_1 period represents the average of all blood pressure levels and pulse rates taken weekly for a period of three months immediately after the initial period of optimal dose determination. The D_4 period represents the average of all blood pressure levels and pulse rates taken weekly or biweekly for a period of three months, approximately one year after beginning therapy with mecamylamine. Dosages of mecamylamine were increased or decreased as deemed necessary throughout the duration of therapy.

For the analysis of data, the 75 patients have been divided into two groups. Group 1 consists of 17 patients who received mecamylamine alone during period D_1, and group 2 consists of 58 patients who received the combination of mecamylamine and reserpine. During period D_4, there were only 14 patients in group 1, whereas there were 61 patients in group 2. The discrepancy in numbers between period D_1 and D_4 for each group of patients is due to the fact that a small number of patients were switched to another group in order to evaluate the effect of reserpine in this drug combination on the same patients. Thus, the administration of reserpine was added to that of mecamylamine after six months of therapy with mecamylamine alone in nine patients. These nine patients, therefore, were in group 1 for period D_1 and in group 2 for period D_4. Eight patients in group 1 received mecamylamine alone during the study. Likewise, in six patients who initially received the combination of reserpine and mecamylamine during period D_1, the administration of reserpine was discontinued after six months, and therapy was continued with mecamylamine alone. Therefore, these six patients were in group 2 during period D_1 and in group 1 during period D_4. Fifty-two patients received both reserpine and mecamylamine throughout the entire study.

Twenty-five additional patients were started on therapy. Eight of these became normotensive while receiving reserpine alone and were omitted from the study series. Five patients died, one from myocardial infarction and four from cerebrovascular accidents, before adequate blood pressure control was obtained, and 12 were dropped from the study series early *either because they moved from the* area and were not followed adequately or because their clinic visits were so erratic that the physician thought it unwise to administer any potent antihypertensive agents.

Prior to starting therapy all patients were carefully evaluated as to previous history and physical examination, complete blood cell count, electrocardiograms, blood urea nitrogen levels, chest roentgenograms, and findings on urinalysis and, in some cases, those on Fishberg concentration tests and phenolsulfonphthalein tests On each return visit, the blood pressure level, pulse rate, weight, and temperature were recorded A brief history was taken, physical examination was made, and side-reactions were noted during both the placebo control period and the period of drug administration The initial laboratory studies were repeated at three-to-four-month intervals A summary of the clinical status of the patients prior to beginning treatment is given in table 2

TABLE 2 —*Clinical Data in Groups of Hypertensive Patients Prior to Receiving Mecamylamine Alone or in Combination with Reserpine*

						Clinical Findings in Patients															
																Retinal Damage‡			
		Sex		Race		Renal Damage*		Cardiac Failure		Angina Pectoris		Abnormal ECG†		Cerebral Damage		1+ or 2+		3+ or 4+	
No of Patients Treated	Average Age Yr	Male	Female	White	Negro	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Group A§ 13	52	1	12	4	9	5	38	4	31	1	8	10	77	1	8	11	85	2	15
Group B‖ 62	50	23	39	18	44	45	73	23	37	14	23	47	76	13	21	41	70	16	27
Total 75	51	24	51	22	53	50	67	27	36	15	20	57	76	14	19	52	72	18	25

* Varies from proteinuria to fixed specific gravity of the urine and elevated blood urea nitrogen level

† Varies from nonspecific T wave changes to left ventricular hypertrophy

‡ Keith Wagener Barker classification percentage calculated on basis of 72 rather than 75 patients

§ Total of patients in subgroups 1A and 2A control upright diastolic blood pressure > 100 mm Hg but < 120 mm Hg

‖ Total of patients in subgroups 1B and 2B control upright diastolic blood pressure > 120 mm Hg

Each of the main treatment groups has been subdivided into subgroups A and B on the basis of the degree of elevation of their upright diastolic blood pressure levels prior to therapy Subgroups A consist of patients in whom the control upright diagnostic blood pressure level was more than 100 mm Hg but less than 120 mm Hg, whereas in subgroups B the control upright diastolic pressure was greater than 120 mm Hg

Of the 75 patients treated, 24 were males and 51 were females There were 22 white and 53 Negro patients The average age of the group was 51 years, with a range of from 28 to 69 years In order to compare the severity of the disease in these patients, the incidence of complications due to hypertension has been recorded in table 2 Subgroups 1A and 2A consisted of 13 patients, and subgroups 1B and 2B consisted of 62 patients In addition to the greater number of patients falling in subgroups 1B and 2B, it is evident that in general the patients in these subgroups had a higher incidence of complications of hypertension than did those in subgroups 1A and 2A In fact, the incidence of complications due to hypertension was high for both groups Renal damage, which varied from proteinuria to fixed specific gravity and an elevated blood urea nitrogen level, was present in 50 (67%) of the patients Varying degrees of cardiac failure were present in about one-third of the patients Twenty per cent suffered from angina, and 57 (76%) of the patients had abnormal electrocardiograms, varying from nonspecific T-wave changes to left ventricular hypertrophy and/or anterolateral myocardial ischemia, the majority having left ventricular hypertrophy Three patients had had previously diagnosed myocardial infarctions shown by the electrocardiograms Nineteen per cent of the patients had had previous cerebral vascular accidents, and one patient had a cerebral vascular accident while being given therapy Seventy of the patients had the retinal changes of hypertensive vascular disease, 25% of these having retinal hemorrhage and/or papilledema

Results

A summary of the blood pressure response to therapy with mecamylamine alone and in combination with reserpine is presented in table 3 Also, the response rate during the initial three months (D_1 period) and one year (D_4 period) after beginning therapy is compared The criterion for responsiveness is a reduction in the mean blood pressure level (diastolic pressure plus one-third of the pulse pressure) of 20 mm Hg or more or a return to normotensive levels (less than 150/100 mm Hg) in the upright position

The results show that the over-all response rate of group 1 (total of subgroups 1A and 1B) was 65% during the D_1 period and 57% during the D_4 period The normotensive response in this group was 41% and 21% respectively The average dose of mecamylamine in the responsive patients in this group was 21 mg daily during the D_1 period and 34 mg daily during the D_4 period, as compared to 37 mg and 62 mg, respectively, for the nonresponsive patients

These results show that there is little difference in the over-all response rate (blood pressure reduction) after treatment with mecamylamine for three months and at the end of one year The average dose necessary to maintain the response, however, increased from 21 mg to 34 mg daily The daily dose was increased nearly twofold in the nonresponsive group without obtaining a satisfactory reduction in blood pressure

Of the patients receiving mecamylamine in combination with reserpine (group 2), 90% of the total group were responsive in the D_1 period and 92% during the D_4 period The normotensive response rate was 34% and 44% respectively Thus, there is no significant difference in the response rate after three months and after one year of therapy The average daily dose of mecamylamine for the responsive patients was 24 mg during period D_1 and 38 mg during the D_4 period, as compared to 16 mg and 44 mg, respectively, for the nonresponsive patients Some of these patients have now been followed for from 18 months to two years There is no evidence of an additional increase in dosage requirement after this period of time as compared to that at the one-year follow-up period

In subgroup 2A, 63% of the patients became responsive during both the D_1 and D_4 periods as compared to 94% and 96%, respectively, in subgroup 2B, made up of the patients who had the more severe disease as judged by the elevated diastolic blood pressure The fact that the response rate was higher in the patients in subgroup 2B suggests that the severity of the disease does not alter the responsiveness of patients to treatment

In every subgroup except subgroup 2A (diastolic pressure less than 120 mm Hg), the average dose of the nonresponsive patients was greater than that of the responsive patients The patients in this subgroup had only mild increases in their blood pressure levels and were very sensitive to mecamylamine Thus, an increase in the dose of mecamylamine, although decreasing the blood pressure to responsive levels during a short trial period, resulted in numerous side-reactions that offset the benefits of therapy obtained at a lower dosage As a result, we regulated the dosage according to symptomatic improvement and side-reactions rather than entirely according to the blood pressure response This does not mean that there was no decrease in blood pressure in these patients but rather that it was not sufficient to classify them as responsive (mean blood pressure reduction greater than 20 mm Hg) without producing episodes of excessive hypotension and occasional syncope

It is quite obvious from comparison of the results in table 3 that therapy with the combination of mecamylamine and reserpine was much more effective in reducing blood pressure than was the use of mecamylamine alone, the response rate of the former being 92% and of the latter, 57% after one year of therapy

Side-effects

A comparison of the side-effects of mecamylamine alone and mecamylamine combined with reserpine is presented in table 4 The major side-effects are qualitatively similar, although there are quantitative differences In general the side-effects of mecamylamine when combined with reserpine are fewer than when mecamylamine is used alone This is especially true after the patients have had therapy for a long period of time, as represented by the patients on combined therapy for a year or longer (period D_4) The incidence of side-reactions during this period is much lower than during the D_1 period, despite the fact that the dosage during the D_4 period was larger than during the D_1 period

The most annoying side-effects of mecamylamine alone and in combination with reserpine were constipation, weakness, and dizziness Constipation was present in 71% of the patients who received mecamylamine alone during the D_1 period as compared to 57% during the D_4 period This compared to 60% and 31%, respectively, in patients who received mecamylamine in combination with reserpine In the majority of these patients the constipation was adequately controlled by cathartics, such as milk of magnesia, cascara sagrada, and mineral oil Weakness was present in 59% and 64% of the patients receiving mecamylamine alone during the D_1 and D_4 periods, respectively, as compared to 46% and 28% in patients who received mecamylamine combined with reserpine In most cases the weakness was not marked and, in fact, was hard to evaluate Dizziness was present at some time during the course of therapy in 41% and 50% of the patients during the D_1 and D_4 periods, respectively, who were receiving mecamylamine alone, as compared to 40% and 28% in patients who received mecamylamine combined with reserpine In most cases the dizziness was due to episodes of excessive orthostatic hypotension Syncope was present on a single occasion in four patients who received mecamylamine in combination with reserpine, and it was probably due to overzealous treatment In general, the dizziness was the most marked on arising in the morning and was usually controlled adequately by decreasing the night dose In some patients, the night and supper doses had to be dropped entirely, and the morning and lunch time doses increased

Sedation, although not annoying to most of the patients, was present in a high percentage of the patients in both treatment groups during both the D_1 and D_4 periods Experimentally, mecamylamine has been

TABLE 3—*Comparison of Blood Pressure Responses in Seventy five Patients to Therapy with Mecamylamine Used Alone and in Combination with Reserpine During First Three Months of Therapy (D_1) and During Three Months of Therapy Following Administration for One Year (D_4)**

	Group 1 (Mecamylamine Alone)										Group 2 (Mecamylamine and Reserpine)									
	Supine Position				Upright Position				Average Dose Mg /24 Hr		Supine Position				Upright Position				Average Dose of Mecamylamine Mg /24 Hr	
	No		%		No		%				No		%		No		%			
	D_1	D_4	D_1	D_4	D_1	D_4	D_1	D_4	D_1	D_4	D_1	D_4	D_1	D_4	D_1	D_4	D_1	D_4	D_1	D_4
Subgroup A†																				
No of patients treated	5	5			5	5					8	8			8	8				
Responsive‡		1		20	2	3	40	60	25	30	1	3	13	38	5	5	63	63	22	46
Nonresponsive	5	4	100	80	3	2	60	40	31	70	7	5	87	62	3	3	37	37	15	23
Normotensive§					2	2	40	40			1		13		1	2	13	25		
Subgroup B‖																				
No of patients treated	12	9			12	9					49¶	52			50	53				
Responsive‡	7	4	58	44	9	5	75	56	20	37	29	32	59	62	47	51	94	96	25	37
Nonresponsive	5	5	42	56	3	4	25	44	42	58	20	20	41	38	3	2	6	4	18	75
Normotensive§	1		8		5	1	42	11			3	8	6	15	19	25	38	47		
Totals	17	14			17	14					57¶	60			58	61				
Responsive‡	7	5	41	36	11	8	65	57	21	34	30	35	53	58	52	56	90	92	24	38
Nonresponsive	10	9	59	64	6	6	35	43	37	62	27	25	47	42	6	5	10	8	16	44
Normotensive§	1		6		7	3	41	21			4	8	7	13	20	27	34	44		

* Responses judged on average of all blood pressure levels during 3-mo periods

† Control upright diastolic pressure > 100 mm Hg but < 120 mm Hg

‡ Reduction in mean blood pressure level (diastolic plus ⅓ of pulse pressure) of 20 mm Hg or more

§ Blood pressure reduced to below 150/100 mm Hg

‖ Control upright diastolic pressure > 120 mm Hg

¶ Data on supine blood pressure level not available in 1 crippled patient shown to increase the time of barbiturate-induced sleep in mice, and the sedative effect of reserpine is well known

There was a high incidence of minor side-effects, such as blurring of vision, dryness of mouth, and nasal congestion, present in both the D_1 and D_4 periods for both treatment groups, the incidence of dryness of mouth, and nasal congestion showing a decrease after prolonged treatment with the combination of mecamylamine and reserpine If the dryness of mouth became severe it was usually adequately controlled by the administration of 5 to 10 mg of pilocarpine 30 minutes before meals

Table 4—*Incidence of Side effects of Mecamylamine Alone Compared to Those of Mecamylamine In Combination With Reserpine**

	Mecamylamine Alone (Group 1)				Mecamylamine and Reserpine (Group 2)			
	No of Patients		% of Total No of Patients Treated		No of Patients		% of Total No of Patients Treated	
Side-effects	D_1	D_4	D_1	D_4	D_1	D_4	D_1	D_4
Anorexia	5	1	29	7	1	2	2	3
Increased appetite	3	3	18	21	6	10	10	16
Nausea	5	4	29	29	8	3	14	5
Vomiting	2	2	12	14	1		2	
Constipation	12	8	71	57	35	19	60	31
Moderate	9	7	53	50	33	16	57	26
Marked	3	1	18	7	2	3	3	5
Nasal Congestion	4	5	24	36	24	14	41	23
Angina		1		7	2	4	3	7
Weakness	10	9	59	64	27	17	46	28
Moderate	8	9	47	64	24	14	41	23
Marked	2		12		3	3	5	5
Palpitations		2		14	5	2	9	3
Blurred vision	10	7	59	50	18	23	31	37
Sedation	6	3	35	22	30	23	53	39
Dizziness	7	7	41	50	23	17	40	28
Syncope	1		6			4		7
Dry mouth	12	10	71	71	25	16	43	26
Impotence†	1	1	33	33	12	10	57	46

* In group 1 there were 17 patients treated during the D_1 period and 14 during D_4 period In group 2 there were 58 patients during D_1 period and 61 during D_4 period

† Figures are based on no of male patients

Beneficial Effects

In table 5 there is a comparison of the beneficial effects of treatment of hypertension with mecamylamine alone and in combination with reserpine during a short term of therapy (D_1 period) and during a period after one year (D_4 period) These beneficial effects are improvement either in such subjective symptoms as headache, angina, and shortness of breath or in such objective signs as the electrocardiographic findings and disappearance of signs of heart failure, as well as lessening in the renal damage that existed prior to therapy

It is difficult to reach any definitive conclusions as to the beneficial effects obtained in the patients who received mecamylamine alone because of the relatively small number of patients in this group as compared to the much larger group who received the combination of mecamylamine and rauwolfia Certain trends that persisted throughout the D_4 period, however, were apparent in this group during the D_1 period The outstanding symptomatic improvement in this group was relief of headache and improvement of heart failure

In the larger group who received mecamylamine in combination with reserpine, there was definite improvement in symptoms Seventy per cent of these patients had relief of headache during the D_1 period as compared to 86% during the D_4 period Sixty per cent and 50%, respectively, had relief of angina, while 73% and 77%, respectively, had symptomatic improvement of heart failure About 40% of the patients showed improvement in their electrocardiographic findings during the two treatment periods Forty-eight per cent and 44% of the patients showed improvement of renal function during the D_1 and D_4 periods, respectively

Twenty per cent of the patients showed a reduction in pulse rate of 10 beats or more (bradycrotic response) after receiving mecamylamine alone, as compared to one-half of the patients who received mecamylamine in combination with reserpine This was true in the D_1 period as well as in the D_4 period in both treatment groups The difference in the bradycrotic response in the two groups is probably due to the effect of reserpine therapy on the patients in group 2

When comparing the beneficial effects in the first three months of therapy with those in the period after one year of therapy, it is obvious that there was very little difference in the two periods Apparently, the initial reduction in blood pressure had the most dramatic effect on the symptoms due to hypertensive vascular disease Since there is no difference in the degree of improvement between the two periods, however, it should be emphasized that these patients *maintained their initial improvement and that there* was no progression of symptoms in the group as a whole

Comparison with Other Drugs

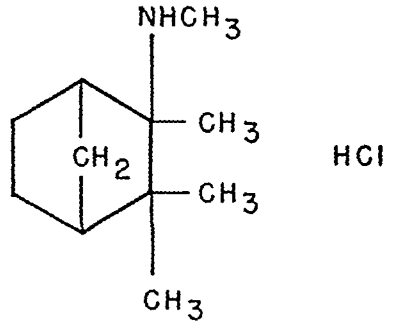
There are three types of drugs, classified on the basis of their primary site of action, currently in use for the treatment of hypertension These types are as follows 1 Centrally acting agents to which the rauwolfia extracts belong These agents are usually used alone only in mild cases of hypertension and find their greatest usefulness when used in combination with other drugs 2 Adrenergic blocking agents, such as Dibenzyline (N-phenoxyisopropyl-N-benzyl-β-chloroethylamine hydrochloride), which block vasoconstrictor impulses at the neuroeffector site of the arterioles, resulting in a marked orthostatic blood pressure reduction and a reflex tachycardia, since the sympathetic impulses to the heart are not blocked Likewise once adrenergic blockade is present, there is no response to vasoconstrictor drugs should a severe hypotensive episode occur Hence these agents are limited in their usefulness to special cases in which some degree of adrenergic blockade is desirable 3 Ganglionic blocking agents, such as hexamethonium and pentolinium (An-

Table 5—*Percentage of Patients with Symptoms Present Prior to Treatment That Improved After Therapy with Mecamylamine Alone and in Combination with Reserpine*

	% of Patients Whose Symptoms Improved with Therapy with											
	Mecamylamine Alone (Group 1)						Mecamylamine and Reserpine (Group 2)					
	Sub group A		Sub group B		Total		Sub group A		Sub group B		Total	
Symptoms	D_1	D_4	D_1	D_4	D_1	D_4	D_1	D_4	D_1	D_4	D_1	D_4
Bradycrotic response		40	27	11	19	21	50	38	53	55	53	53
Headache	50	100	63	50	60	70	83	83	68	87	70	86
Angina	33		50		40				65	64	60	58
Congestive heart failure	100	100	100	66	100	75	66	33	77	84	73	77
Abnormal electrocardiographic findings			13	50	10	33	40	40	37	43	37	42
Renal impairment			50		37		100	67	44	42	48	44

solysen) tartrate, which act by blocking the transmission of impulses through the sympathetic and parasympathetic ganglions

Mecamylamine belongs in the latter group of drugs Unlike the other members of this group (hexamethonium and pentolinium), it is completely absorbed from the gastrointestinal tract, which results in a more prolonged and stable response in the blood pressure reduction The structural formula of mecamylamine is as follows



Results—Table 6 compares the blood pressure response after the long-term administration of mecamylamine in combination with reserpine to that after the administration of hexamethonium, pentolinium, and chlorisondamine (Ecolid) chloride when each of these drugs was used in combination with reserpine The response rate was significantly greater in patients who received mecamylamine in combination with reserpine The optimal dose of pentolinium was 10 times that of mecamylamine, that of chlorisondamine was 7 times that of mecamylamine, and that of hexamethonium was approximately 65 times that of mecamylamine

Side-effects—Table 7 compares the side-effects after therapy for one year or longer with mecamylamine in combination with reserpine to those with hexamethonium, pentolinium, and chlorisondamine when combined with reserpine In general, the incidence of side-effects of mecamylamine used in combination with reserpine was lower than with the other three blocking agents This decrease in the incidence of side-reactions with this drug is probably due to its complete absorption, which diminishes the variability of ganglionic blockade, which exists throughout the day when the drugs are not completely absorbed

The majority of the side-reactions are, of course, the result of both sympathetic and parasympathetic blockade, therefore, are qualitatively similar in all ganglionic blocking agents, and are to be expected when these drugs are used The incidence of these side-reactions, however, can be minimized and the beneficial effects increased by the judicious regulation of dosage, particularly when the drugs are used in combination with centrally acting drugs such as the rauwolfia extracts

Treatment of Side effects

Constipation is one of the most frequent side-effects of mecamylamine therapy If this problem is not combatted vigorously, it may lead to fatal ileus Because of the prolonged action and the potency of this drug, the onset of intestinal paralysis may be more rapid and the severity of the ileus more marked than with any of the other ganglionic blocking agents that are available for oral administration Therefore, it cannot be overemphasized that the therapist must be constantly vigilant for this problem, especially during initiation of therapy, and must treat it vigorously when it occurs Usually, the administration of saline cathartics is adequate, i e, 15 to 30 cc of magnesia magma or 15 to 30 Gm of magnesium sulfate If administration of these is not adequate, irritant cathartics should be tried alone or in combination with the saline cathartics The irritant cathartics that we have found most useful are elixir of cascara sagrada, 10 to 20 cc, or castor oil, 15 to 30 cc Some patients may respond to one cathartic but not to another

TABLE 6—*Comparison of Blood Pressure Response to Therapy with Mecamylamine,* Hexamethonium,* Pentolinium* or Chlorisondamine† in Combination with Reserpine*

	Mecamyl amine		Hexameth onium		Pento linium		Chlorisond amine	
	No of Patients	% of Total No of Patients	No of Patients	% of Total No of Patients	No of Patients	%	No of Patients	% of Total No of Patients
No of patients treated	61		75		76		44	
Responsive‡	56	92	57	76	60	79	35	80
Nonresponsive	5	8	18	24	16	21	9	20
Normotensive	27	44	28	37	25	33	14	32

* Observations made over a therapeutic period of 1 year or more
† Observation made over a period of 3 months to 1 year only
‡ Average doses in responders were 38 mg of mecamylamine 2 307 mg of hexamethonium 341 mg of pentolinium and 253 mg of chlorisondamine

Cholinergic agents are frequently of value and are often more effective than cathartics We have found 15 to 30 mg of neostigmine (Prostigmine) bromide given orally before each meal to be the most effective cholinergic agent for constipation Five to 10 mg of pilocarpine or 10 mg of bethanechol (Urecholine) chloride given before meals, however, are also effective Pilocarpine appears to be superior to the other cholinergic agents for combating dry mouth, which is frequently observed during mecamylamine therapy

If the constipation has progressed to ileus before adequate therapy is instituted, mecamylamine therapy should be discontinued and 1 mg of neostigmine should be given parenterally every hour until relief is obtained If severe, standard methods for treating ileus should be employed The danger lies in undertreatment of this complication and not in overtreatment Cases 1 and 2 are examples of patients in whom mecamylamine produced intestinal paralysis, which was inadequately treated until marked ileus was present

TABLE 7—*Percentage of Total Number of Patients Who Had Side-Effects When Treated with Mecamylamine, Hexamethonium, Pentolinium or Chlorisondamine*

	Mecamyl amine and Reserpine	Hexameth onium*	Pento linium and Reserpine	Chlorisond amine and Reserpine
Increased appetite	16	21	32	23
Nausea	5	26	‡	23
Vomiting		16	‡	9
Constipation	31	2	49	59
Nasal congestion	23	61	51	68
Weakness	28	35	32	43
Blurred vision	37	65	43	50
Dry mouth	26	‡	‡	41
Sedation	39	27	39	25
Dizziness	28	35	40	50
Impotence†	46	50	‡	50
Bradycardia	53	68	67	66

* Treatment initially with hexamethonium alone reserpine was added subsequently
† Observations on males only
‡ Observations not available

CASE 1—A 48-year-old man was seen with moderately severe hypertension (blood pressure 180/130 mm Hg) but without eyeground changes Therapy with a rauwolfia alkaloid (8 mg of alseroxylon per day) and hydralazine (Apresoline) hydrochloride (800 mg per day) was started He responded well (blood pressure 130/98 mm Hg), but after six weeks he developed a severe reaction to hydralazine (erythema nodosum, fever, joint pains, chills, vomiting, and anuria) After the hydralazine therapy was stopped, the toxic symptoms subsided, but the blood pressure increased to 220/138 mm Hg and he developed precordial pains and retinal hemorrhages Therapy with mecamylamine was started, and the dose was progressively increased so that, after the second week, he was receiving 5 mg four times a day When seen one week later, he complained of severe constipation and abdominal distention A diagnosis of intestinal paralysis was made and the patient was given 1 mg of neostigmine every hour, which was effective after the third dose Recovery was uneventful and the problem of constipation is now easily handled in this patient with the administration of 30 mg of neostigmine before each meal

Another consideration insofar as untoward reactions are concerned is that of aggravating a preexisting renal failure The blood urea nitrogen level seems to be the best method for evaluating any untoward renal effect of blood pressure reduction If the blood urea nitrogen level is above 80 to 100 mg per 100 cc prior to therapy, reducing the blood pressure significantly usually aggravates the renal failure Contrariwise, if the blood urea nitrogen is normal, we have not observed renal failure due to blood pressure reduction unless the pressure was reduced excessively to hypotensive levels (case 2) If the blood urea nitrogen is only moderately elevated (40 to 60 mg per 100 cc), then judicious lowering of the blood pressure with a ganglionic blocking agent, such as mecamylamine, can be undertaken A careful check should be kept on the blood urea nitrogen level as an index of aggravated renal failure, when the effective dose of the blocking agent is reached Usually the blood pressure, taken in the standing position, can be reduced to 160-180/100-110 mm Hg without further compromising renal function in the patient with moderate kidney damage due to hypertension Reducing the blood pressure below these levels must be undertaken with extreme care If the blood pressure can be reduced effectively without significant depression of renal function, progressive anatomic damage due to hypertension will be arrested but not reversed

Case 2—A 50 year-old man with a three-year history of hypertension that had become more severe in the previous six months was seen The patient now had headaches lethargy, confusion, dyspnea, peripheral edema, and retinal hemorrhages His blood pressure was 198/140 mm Hg in the sitting position and 208/148 mm Hg when standing He had retinal hemorrhages and papilledema The electrocardiogram showed severe myocardial damage The blood urea nitrogen level was 30 mg per 100 cc Therapy with a rauwolfia alkaloid was started without a significant effect on the blood pressure It was felt that the patient was completely unreliable insofar as following instructions was concerned, but, because of the severity of his disease it was decided to start mecamylamine therapy The dose, initially 5 mg twice a day, was progressively increased so that, after three weeks, he was receiving 35 mg per day in doses of 5 15 10 and 5 mg Five days later he was admitted to the hospital through the emergency room with a diagnosis of intestinal obstruction He had a distended tender abdomen with periumbilical pain of three days duration When a complete history was taken and the roentgenograms of the abdomen became available, it was decided that the patient had a fecal impaction and ileus due to therapy with the ganglionic blocking agent, mecamylamine The blood pressure was 100/60 mm Hg The blood urea nitrogen level was 58 mg per 100 cc Fluids were administered, and 1 mg of neostigmine (2 cc of a 1 2 000 solution) was given every hour After the fourth dose, an explosive bowel movement occurred The blood pressure increased slowly to 120/80 mm Hg, and convalescence was slow but progressive over the next four days The supine blood pressure level remained normal but the patient could not stand up due to orthostatic hypotension Thereafter this marked orthostatic effect improved, and the patient s blood pressure was regulated by the administration of reserpine plus mecamylamine The subsequent clinical course during three months, was uneventful, and the blood urea nitrogen level again decreased to 28 mg per 100 cc

It is to be emphasized that there is no average daily dose of mecamylamine for any one patient and that the dosage for each patient must be determined individually It is important to start the patient on relatively small doses and to increase the dose slowly in order to avoid excessive hypotension and side-reactions The patient should be seen frequently during the initial period of dose determination, and once the therapeutic dose is established it is not necessary to see the patient quite so often

Comment

The results of this study indicate that mecamylamine in combination with a rauwolfia alkaloid (reserpine) is a very effective method of treatment for moderate to severe hypertension and is more effective than reserpine combined with hexamethonium, chlorisondamine, or pentolinium Also, combined therapy is much more effective than when mecamylamine is used alone We feel, therefore, that mecamylamine in combination with reserpine is the treatment of choice in moderate to severe hypertension Mecamylamine is considerably more potent than other currently available ganglionic blocking agents, and, therefore, the dose should always be titrated carefully in each patient in whom it is used We feel that the starting dosage should be 2 5 mg twice a day, to be increased on following visits according to the response of patient s upright blood pressure level Some patients require small doses to produce the desired blood pressure response In patients requiring larger doses, use of the method of dose determination shown in table 1 is recommended

The initial response to treatment with mecamylamine is maintained after a long period of therapy, and, in addition, the incidence of side-reactions, which are present initially, tends to decrease when therapy is continued The initial symptomatic improvement that is observed after treatment with mecamylamine is maintained when therapy is continued for one year or longer

Severe renal and cardiac disease are not contraindications to therapy, since the response rate in the group of patients with more severe disease was found to be just as high as that in the group with less severe disease The blood urea nitrogen level should be followed carefully as a guide to any progression of renal disease, and sudden drops in blood pressure should be avoided, since this may cause a decrease in renal function The majority of side-reactions can be regulated adequately by proper dosage and by the administration of drugs that offset some of these side-reactions Constipation should be controlled with cathartics The patients should be instructed as to the side-effects to be expected and as to their importance and regulation

Summary

Seventy-five patients with hypertension were treated with mecamylamine (Inversine) hydrochloride alone or in combination with reserpine for one year or longer,

and a comparison was made between the immediate response and the response after one year of treatment The comparison of results with mecamylamine, hexamethonium, chlorisondamine (Ecolid) chloride, and pentolinium (Ansolysen) tartrate indicates that mecamylamine is a much more potent ganglionic blocking agent than the other drugs In addition, the response is less variable due to the complete absorption of this agent Mecamylamine when used in combination with reserpine was found to be more effective than mecamylamine when used alone The side-effects are primarily those of ganglionic blockade, which are present to a less degree with mecamylamine than the other blocking agents and, indeed, are decreased when mecamylamine is used in combination with reserpine

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COMMUNITY HEALTH AND WELFARE PLANNING

ROLE OF THE LOCAL MEDICAL SOCIETY AND ITS MEMBERS

Myles MacDonald, M S W
and
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Practitioners of the healing arts have always been accorded social prestige and have been ascribed abilities and competencies often beyond their actual skills The healing priest, shaman, apothecary, and surgeon have exercised influence over kings, chiefs, and societal leaders by virtue of their health-maintaining functions In North America, during the last century, the doctor in small towns and large cities enjoyed unprecedented status as a community consultant and intimate advisor This counseling function of the physician extended to such areas of community life as politics, economics, welfare services, institutional programs, and a great many other areas of social organization for which the study of medicine, per se, did not prepare him That American physicians have, in most instances, met the challenges outstandingly has been due to the attractiveness of the profession to those who possessed broad community ideals and leadership qualities suitable to the occasions

• *The role of organized medicine and its influence in determining health matters has been lessening, one reason being the diminishing intimate relationship between the patient and the general practitioner As the pre-eminent advisory group in health matters, medical societies have not been the active participants in community affairs which they ought to be The result has been that nonmedical persons and groups are more concerned with whether the local medical society will oppose a health suggestion than they are in getting the active support of the medical fraternity for it The experiences of some organizations in dealing with medical societies has occasionally been such as to preclude their approaching of the societies directly*

There would seem to be a need for many societies, as a first step, to affirm their willingness and readiness to cooperate fully with all groups in the consideration of community problems which are of direct, or even indirect, interest to the profession Community agencies are not frequently as concerned about the personal opinions of the medical man as they are about the attitude of the organized medical group which he represents An alert community, like nature, abhors a vacuum, and will find health leadership from other resources if such leadership is not proffered by its own medical society

We are rapidly recognizing that the dependence of the public on the medical practitioner for leadership in nonhealth areas has been undergoing a change As a matter of fact, the role of organized medicine and its influence in determining health matters has been lessening The reasons for these changes include, among others, a less intimate relationship between the patient and general practitioner, the public's recognition of the increased specialization of the medical arts and its willingness, in society generally, to consult a specialist in the topic or subject of concern, and, in particular, the development of the public health and paramedical sciences Laymen deciding important community health affairs will, in addition to consulting competent physicians, seek the advice of sanitary engineers, hospital administrators, public-health educators, community organizers, and others whose training qualifies them as experts Community decision-making processes are further affected by the thinking of unions, civic organizations, political factions, and a number of other groups, not all of which are readily identified by the community The development of a mass of citizenry which has been subjected to public health educational techniques and battered by a colossal amount of medical information in popular literature has also resulted in a degree of misinformation which tends to lessen the public's dependence upon medical physicians This change in the role of the physician and the professional societies in deciding

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Executive Director (Mr MacDonald) and Chairman (Dr Cooper), Health Division of Council of Community Services health issues on behalf of fellow citizens has had implications for the individual practitioners and the medical societies which have not, in our opinion, been fully realized.

The emergence of national and local specific disease societies and causes, with their thousands of state and local affiliates or chapters, each with lay-dominated boards of directors, fund-raising programs, and hosts of financial contributors, has had a very real bearing on community health planning. This growing field of the voluntary health organizations is demonstrating an American innovation for attempting to meet certain health needs of our population. If this method fails, there appears at this time to be only one alternative for satisfying the voter's demands for health security—greater involvement by the taxing authorities at all levels of our society.

Americans, individually and as a nation, are rapidly accepting and integrating the medical opinions, information, and propaganda to which they are being increasingly exposed. And yet, the achievement of desirable programs, institution of orderliness in meeting major health needs, financing of medical care, and effectuation of our common goals is being frustrated because of the lack of leadership, the inability to use channels of mutual planning and coordination on the part of the many organizations concerned, and the general lack of a concerted approach to these problems by, among others, physicians and medical societies.

The Medical Society

The function of the medical society as the guardian of professional mores is completely accepted by a public which is becoming aware of the existence of grievance and other committees. Its interest in maintaining professional standards of education and preparation for practice is also understood, although this concern is sometimes referred to as a reflection of ‘closed shop’ thinking. As the preeminent advisory groups in health matters, the societies have not been the active participants in community affairs which they ought to be. This is particularly noticeable in local affairs where a society is lacking the stimulus of a national or state society directive or policy. In effect, nonmedical persons and organizations are more concerned with whether the local society will oppose a suggestion than they are in getting the active support of the medical fraternity for it. This is essentially a negative appraisal—too often confirmed in actual practice.

The frequent failure of organized medicine to involve itself in the early stages of all significant community endeavors is, in part, possibly the consequence of a lack of vision on the part of medical leaders. At the same time, there often does not exist an appropriate channel within societies whereby attention can be given to incipient situations.

Further, the experiences of other organizations in dealing with some medical societies has occasionally been such as to preclude their approaching the societies directly. In many communities, the local society appears to be concerned about community affairs (as far as the public is aware) only in terms of avoiding adverse publicity or maintaining the control or conduct of a jealously guarded project. In general, organized medicine at the local level, where its members also constitute themselves taxpayers, parents, civic leaders, and parishioners, frequently has failed to establish vital relationships with other groups or well-understood channels and methods for real participation in community health planning and programming. An alert community, like nature, abhors a vacuum and will find health leadership from other resources if such leadership is not proferred by its own medical society.

To secure the necessary further extensive and effective involvement in community health planning by the medical practitioner and his professional organization, societies should appreciate that they are being required, by the urgency which other groups feel, to establish methods of communication and procedures whereby the concerned bodies, public or voluntary, can secure generally representative opinions and answers to specific questions addressed to organized medicine. There would seem to be a need for many societies, as a first step, to affirm or reaffirm publicly and through channels their willingness and readiness to cooperate fully with all other concerned groups in the local consideration of community problems which are of direct or indirect interest to the profession. A genuine affirmation can be made only when a society is prepared to adopt the principle that all concerned have an opportunity to express opinions, however divergent or unacceptable these may be to medical men. Our political democracy requires that every organization demonstrate, by its own actions, its belief in our dictums.

Nor can a medical society too rigidly predetermine those areas or matters in which it ought, or is willing, to be consulted. Whenever a subject is broached to a society by responsible community forces, the courtesy of a considered reply is necessary, even if the reply constitutes a rejection. Society tends to progress, and progress is inevitably accompanied by change. Those groups which are too identified with the maintenance of the status quo or are irrationally opposed to change tend to find themselves negated by other social forces and relegated to ineffectiveness when change is contemplated. Neglect or refusal to adapt itself to the pattern of planning being developed in its community can be harmful to the best functioning of a local society.

As a means of implementing a society's participation in community planning, we suggest that the societies consider the desirability of establishing a standing committee to be known as the ‘community services committee’ or some similarly appropriate designation. This committee would have to be composed of experienced, active, and enthusiastic persons and would attempt to provide a channel through which requests from the community for medical personnel, opinion, or support might be given consideration.

The committee could act as a medium for gathering information and should be constantly aware of the status of all public or confidential proposals and programs in the community in which the professional body has an active or limited interest. Agencies, organizations, and civic groups would be willing to use such a depository of information, although its primary purpose would be to relate such data to the policies of the medical society. Someone has reminded us that Noah built the ark before the flood—the societies should be aware of what is going to happen in community health affairs before it occurs The committee could function as an advisory body to the board of directors of a society on problems in connection with temporary organizational representation between the society and other groups, public or voluntary

It could recruit, nominate, evaluate, and provide liaison in providing interested and competent physicians to serve on the boards of directors or policy-making committees of public or voluntary bodies desiring such personnel Implied here is the hope that some order may be brought into the confused situation which everyone recognizes A limited number of willing physicians are now required to involve themselves extensively (and sometimes unsatisfactorily) in the affairs of many groups, while others refuse these challenges or are unrecognized as potential leaders The committee might well undertake the assignment of members, for specific periods of time, to agency boards, committees, study teams, and other community groups in which it is important that medical professional opinion be expressed Younger physicians, new to the community or lacking experience, could be exposed to gradually increased responsibilities and more significant assignments Older physicians who, while most active, have found their energy dissipated in many groups might indicate their preference for extensive involvement in limited areas of interest

A periodic analysis of the collective contribution which the medical fraternity is making to its community could be brought to the attention of the public, possibly through the public relations committee and the new community services committee The professional organization gains little when a large percentage of its members, as individuals, give uncounted man-hours to the community through services on boards, committees, or projects Few medical societies have undertaken any study of the genuine contributions thus rendered to community well-being Not many organizations can afford to miss this opportunity to reinforce their own standing and the prestige of their members

The new committee could provide a means whereby physicians would have at hand a source of help, counsel, and opinion in certain matters Experienced physicians, aware of the history of particular organizations, understanding the psychological and cultural dynamics which impel well-known community leaders (including other physicians), informed about undercurrents of community life and the interorganizational and intra-agency relationships could do much, through the committee, to increase the value of individual members representing the society

Another function of the new committee could be to advise the board of directors of a society in matters of community service affecting the total membership Such problems as whether contributions to charity should be solicited from individual doctors or whether the professional body should assume responsibility could be considered by the committee

The Physician

Although the leadership of the professional medical body may wish to involve the society more extensively in community health and welfare planning activities, the key to its success is the individual member of the society When, as a medical person, an individual is a member of the board of directors or a policy-making committee of a voluntary agency or a public service, he is engaged in community planning In too few cases is he aware of the impingement or scope of policies which he has helped decide Frequently, a group decision in one area of community life has ramifications in other areas and the effects are not immediately forseeable The individual physician must, therefore, be prepared to subordinate himself to his colleagues in matters of community health and welfare services in an effort to increase his own effectiveness and the efficiency of his organization

Space does not permit a full consideration of the point that every physician is considered by the public to be a representative of his medical society In part, this attitude exists because the informed public is well aware of the fact that the society assumes responsibility for the ethics and quality of performance by its members Lay persons are also aware of the extent to which, at the national, state, and local levels, organized medicine has evolved and has stated policies and opinions Most physicians are constantly on the alert against any infringement of their civic or personal rights and responsibilities as different from those concomitant with membership in the medical society The line between them, if there can be one for professional persons, is exceedingly thin and capable of much confusion in delineation To the lay public, each reputable physician is presumed to reflect the aggregate opinion and attitude of the whole professional group and is, ipso facto, granted a psuedorepresentativeness when he is not an official spokesman of the society to which he belongs

A personal and sincere reevaluation of the contribution he is making in the life of his community's agencies will help the physician to assess more clearly the primacy and importance of his unofficial role as a representative of his medical society Community agencies are not, frequently, as concerned about the personal opinions of the medical man (except where appropriate to medical treatment matters) as they are about the attitude of the organized medical group which he represents In most cases, membership on a board of directors or the policy determination committee of an organization is extended to a physician not only because of his personal qualities but because he is a qualified medical practitioner and member in good standing in his medical society Few physicians will claim superior talents in, or a deep knowledge of, the complexities of voluntary agencies' administration, financing, or services Still fewer will claim intimate awareness or expert status regarding the conduct of public health services The agencies realize that there can be as many individual opinions about a specific matter as there might be physicians consulted The important factor to voluntary and public bodies is the stated stand or formal consensus of the whole professional organization on a particular issue

It remains for all physicians to realize this fact and to accept available assistance and guidance through a formalized relationship within the society This should not lessen the individual's contribution or sense of satisfaction Indeed, it should make him more comfortable and secure in the knowledge that he is a formal representative and supported by his society in his efforts

The conscientious physician should be willing to allow a committee of his peers to assess his qualifications for a particular task in any public or voluntary agency This carries with it a willingness to accept new assignments of increasing difficulty and to seek the guidance of his fellow practitioners in a formal manner whenever it may be required The alert medical man will be continuously aware of the stated policies of his society and interpret these clearly and diplomatically at appropriate moments He should also assume responsibility for seeing that his society states new policies as required and that these are communicated to all concerned as promptly as possible

Those physicians overextended in community life must be prepared to relinquish some of their activities to other physicians and, if desirable, devote themselves more intensively and purposefully to the achievement of the goals of fewer organizations Lastly, every physician should be personally prepared to accept responsibility for some participation as a representative of his medical society, should encourage all physicians to engage in community affairs, and should see these opportunities as challenges to himself, his fellows, and his profession

Summary

Organized medicine in America is losing some of its status and function as the paramount health advisor to local communities This is because it has not defined clearly new ways of participating most effectively in community health planning at the local level Each local medical society should establish a special working committee to coordinate the participation of the society and its members in local health and welfare planning and policy determination Individual physicians are unaware of their pseudorepresentativeness as members of local medical societies and should, in the interests of the profession, be prepared to subordinate personal interests and activities in regard to health and welfare agencies to the direction of their colleagues and peers in the society

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CLINICAL NOTES

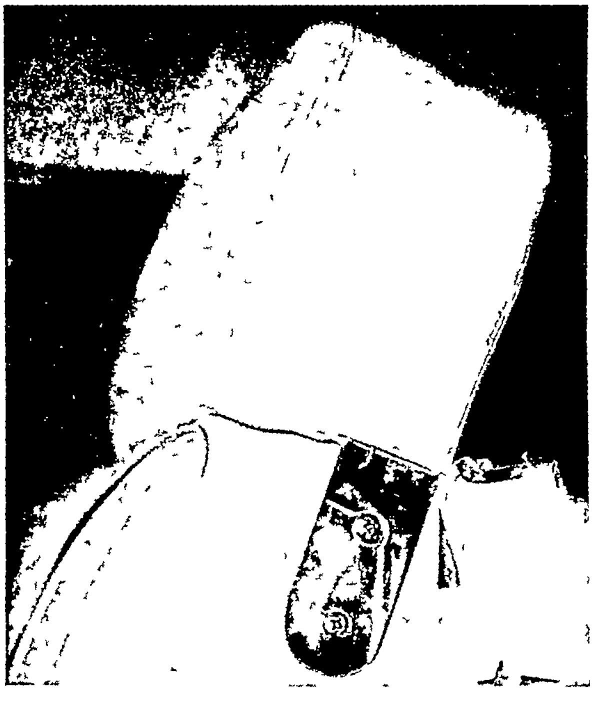
AUTOMOBILE SAFETY DEVICE—HEADREST TO PREVENT WHIPLASH INJURY

Albert D Ruedemann Jr, M D, Detroit

One of the more common forms of injury following automobile accident is the so-called whiplash injury of the cervical spine and musculature This injury usually results from a blow to the back of the automobile in which the individual is riding, causing first a forward movement of the body, followed by a rapid back-snapping of the head This results in an injury to the neck There are several reasons for this The first is a result of the change in the automobile seat to accommodate the new lower models The seat has also diminished in height, allowing a greater area of the body to be above the top of the seat Second, the advent of expressways and super highways with congestion of traffic at entrances and exits makes the chain reaction accident a more common occurrence

In order to prevent occurrence of the above injury, a modified headrest about 6 in (15 24 cm) in height was made to fit on top of the present seat It is so constructed that it follows the line of the seat in order that the head might not rest comfortably during ordinary travel This is to prevent any desire on the part of the driver to rest his head and possibly become drowsy The width of the headrest is approximately 6 in, allowing the top part to strike the head at about occiput level This prevents untoward loss of rear vision Coupled with an outside rear mirror, the loss is negligible The headrest is screwed to the seat frame on each side by several screws and is removable In this case it was made to match the existing automobile upholstery It is used in conjunction with a shoulder-type seat belt which reduces the forward motion of the body from a rearward or forward blow and in conjunction with the headrest would greatly reduce rearward motion from a blow to the automobile from behind (see figure)

1633 David Whitney Bldg (26)



The headrest was made through the courtesy of Messrs E M Braden and L Q Brown of the Chrysler Sales Department, and Mr Mazey of the Chrysler Trim Department manufactured the device

COUNCIL ON FOODS AND NUTRITION

The following six papers were presented at the symposium "Fats in Human Nutrition," in New Orleans, March 15, 1957 This symposium was sponsored by the Council on Foods and Nutrition, with the cooperation of the Tulane University School of Medicine, Louisiana State University School of Medicine, New Orleans Graduate Medical Assembly, and Orleans Parish Medical Society These papers plus the panel discussion will be available soon in monograph form

PHILIP L WHITE, Sc D, *Secretary*

Introduction to Symposium on Fats in Human Nutrition

Interest in the role of fats in human nutrition has been stimulated markedly in recent years by research findings which suggest that dietary fat may be implicated in the genesis of atherosclerosis and coronary heart disease The possibility that dietary factors may influence a process that has been considered an inevitable consequence of aging is a real challenge to scientific investigation Thus far, many studies have been carried out in several species of animals and in man, as well as in basic biochemistry, but much remains to be learned The literature on fat metabolism, including relationships of dietary fat and serum lipids to disease of the blood vessels, is so extensive that it is difficult for the practicing physician to evaluate this mass of information The purpose of this symposium is to review the current status of knowledge in this field, to attempt to differentiate facts from hypotheses, to indicate controversial issues, and to suggest promising areas for future research It is hoped that such a review will assist the physician in meeting problems presented by his patients and in planning therapeutic regimens which may prove beneficial Although all the facts are not available as yet, findings to date can be weighed carefully and sane experimental approaches to therapy developed

Unfortunately, many premature, uncritical, and even erroneous statements have appeared in numerous nonscientific publications which are widely read The general public needs guidance from the medical profession in interpreting such articles

The impetus given to studies of fat metabolism should prove worthwhile regardless of whether or not a causal relationship is found between dietary fat, atherosclerosis, and heart disease It is anticipated that, within the next few years, intensive research will assist in solving many of the problems raised in this symposium

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DIETARY FAT—ITS ROLE IN NUTRITION AND HUMAN REQUIREMENT

L Emmett Holt Jr, M D, New York

Interest in fats goes in waves, the current wave being stimulated by the possible relation of fat to atherosclerosis—an area I shall leave to others to discuss Instead, I shall call attention to certain other effects of dietary fat that are less in the public eye

Fats as a Source of Energy

Although beyond the scope of this paper, it is worthwhile to recall that not all fats yield the traditional figure of 9 calories per gram, that is only an approximation for average edible fats The energy obtainable from fat is a function of the length of the carbon chain The short-chain fatty acids yield less energy, tributyrin, for example, yields only 6 7 calories per gram

Fats and Physical Work

When caloric demands are high, it is well known that fat is a preferred food The discomfort from the additional bulk of a less calorigenic food is thereby avoided Less familiar are the observations of Deuel and his co-workers [1] and of Samuels and his associates [2] in rats indicating that a diet containing considerable fat improves capacity for work as compared to a fat-poor diet and gives greater swimming endurance when food is subsequently withdrawn Reproductive efficiency and lactation were also found by Deuel's group to be superior in rats on diets containing moderate amounts of fat

Fats and Caloric Efficiency

Forbes and co-workers [3] have shown in a series of publications that there is more efficient utilization of calories when fat forms a substantial fraction of the diet The economy in calories is about 5 to 10% Several factors may contribute to this result—absence of a specific dynamic effect when fat is added to protein as contrasted with the result when carbohydrate is added to protein, and also the possibility that fat participates directly in certain metabolic reactions that would require its production from carbohydrate were it not provided as such

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From the Department of Pediatrics, New York University College of Medicine

Fats as Vehicles

It is well known that fats serve as vehicles for the fat-soluble vitamins, A, D, E, and K, but it is less well known that many of the flavors of familiar foods are due to minute quantities of substances intimately associated with fat The extraction of various foods with fat solvents may remove the flavor completely or affect it adversely The loss of flavor of fruits and vegetables when they are preserved is attributed in large part to oxidative changes in fatty components

For the fat-soluble vitamins it is a question of whether increased fat absorption "drags in" such vitamin as may be present, thereby increasing the absorption of the vitamin Although such effects have been reported, studies undertaken by our group[4] in children indicated that the absorption of fat and of vitamin A were quite independent processes and did not influence each other

Fats and the Activity of the Stomach

It is an old observation that fats stay in the stomach longer than other foods Both the secretion and the motility of the stomach are inhibited by fat The effect is produced by an inhibitory hormone, enterogastrone, which is liberated from the duodenal and jejunal mucosa when absorption of fat commences The effect varies with different fats, depending on their ease of absorption The value of this mechanism is debated The delay in digestion appears to have some virtue in situations where there is a long interval between meals in that hunger pains do not develop This was said to be a serious problem in the German army during World War I because of the shortage of fats

Advantage is taken of the hunger-dispelling property of fats in certain reducing diets, the purpose being to avoid nibbling between meals On the other hand, it is claimed that the tastiness of fatty foods and their high caloric content offset this More data are needed to settle the question as to whether a high-fat or low-fat diet works best, but from present indications it appears that differences between individuals may be important here

TABLE 1 —*Effect of Sudden Increase in Dietary Fat**

	Net Balance Gm, 3 Day Period		
	Protein	Ash	Water
High-carbohydrate diet (protein 101 fat 115 carbohydrate 730 Gm)	− 5 22	+3	+165
High fat diet (protein 103 fat 302 carbohydrate 320 Gm)	−11 98	−7	−906

* Data from Benedict and Milner[7]

A group of infants, studied by Hansen and associates,[5] who were allowed food at will took fewer calories on a high-fat regimen However, we were unable to confirm this in one infant recently studied by Lanman in our clinic (fig 1)

Fats and Resistence to Infections

Among clinicians, particularly among pediatricians, the impression prevails that a preponderance of carbohydrate food tends to predispose to infection and a preponderance of fat to protect The literature on this subject is voluminous, but the net information that can be accepted is very scanty Experimental studies done before the vitamin era have to be discounted, since the intake of fat-soluble vitamins was varied with the fat, and the studies published since have not given consistent results In Europe, the flare-up of tuberculosis during and after World War II is widely attributed to the shortage of dietary fat Overcrowding and shortages of protein were usually present also, and data are not available in which these other factors could be ruled out The Gerson-Hermannsdorfer-Sauerbruch diet, which included a high fat content among other features, had a considerable vogue in Germany for the treatment of tuberculosis in the prewar years, but little has been heard of it since

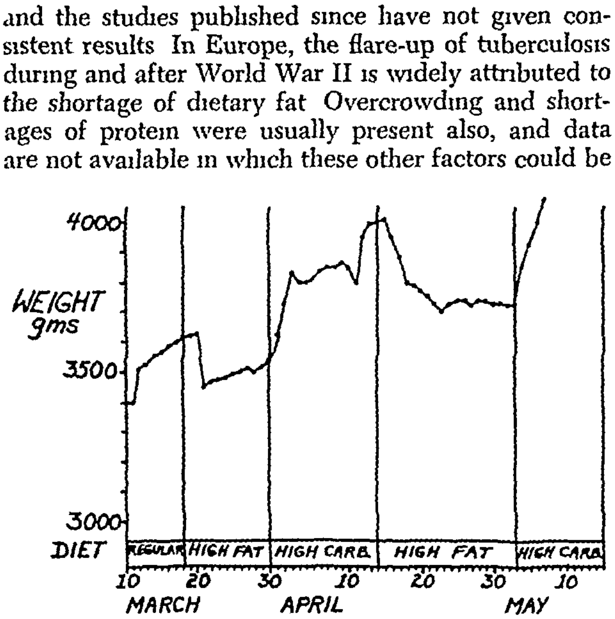

Fig 1 —Effect of fat and carbohydrate on weight of infant

Increased resistance to the common cold from a liberal-fat diet was claimed by Hoelzel[6] some years ago, but a large-scale statistical study to confirm this is still wanting There is no doubt that lipids play a role in immune processes and in permeability phenomena, but the relation to dietary fat remains to be established

Ketogenic Diets and Disease

Ketogenic diets have been used with success in a number of clinical conditions, notably urinary infections and epilepsy, and the mechanism of their action is of some interest In urinary infections, it appears that the benefit can be attributed to the concentration of acid in the urine that does not permit certain bacteria to survive The benefit obtained in epilepsy must be explained differently, it appears to be due to a measure of tissue dehydration brought about by the high-fat diet Such dehydration occurs whenever fat is substituted for carbohydrate and can be detected even before ketogenic levels are attained

The shifts of body water resulting from changing the proportions of fat and carbohydrate in the diet were known to the German physiologists of the last century and were well studied by Benedict and Milner[7] in the United States half a century ago (table 1) They are familiar to pediatricians and are illustrated in figure 1 The phenomenon of water loss in subjects on a high-fat diet is a temporary one, in three or four days a new equilibrium is established and the original weight gain is restored Conversely, when fat is re-

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PHILIP L WHITE, Sc D, *Secretary*

Introduction to Symposium on Fats in Human Nutrition

Interest in the role of fats in human nutrition has been stimulated markedly in recent years by research findings which suggest that dietary fat may be implicated in the genesis of atherosclerosis and coronary heart disease The possibility that dietary factors may influence a process that has been considered an inevitable consequence of aging is a real challenge to scientific investigation Thus far, many studies have been carried out in several species of animals and in man, as well as in basic biochemistry, but much remains to be learned The literature on fat metabolism, including relationships of dietary fat and serum lipids to disease of the blood vessels, is so extensive that it is difficult for the practicing physician to evaluate this mass of information The purpose of this symposium is to review the current status of knowledge in this field, to attempt to differentiate facts from hypotheses, to indicate controversial issues, and to suggest promising areas for future research It is hoped that such a review will assist the physician in meeting problems presented by his patients and in planning therapeutic regimens which may prove beneficial Although all the facts are not available as yet, findings to date can be weighed carefully and sane experimental approaches to therapy developed

Unfortunately, many premature, uncritical, and even erroneous statements have appeared in numerous nonscientific publications which are widely read The general public needs guidance from the medical profession in interpreting such articles

The impetus given to studies of fat metabolism should prove worthwhile regardless of whether or not a causal relationship is found between dietary fat, atherosclerosis, and heart disease It is anticipated that, within the next few years, intensive research will assist in solving many of the problems raised in this symposium

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DIETARY FAT—ITS ROLE IN NUTRITION AND HUMAN REQUIREMENT

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Interest in fats goes in waves, the current wave being stimulated by the possible relation of fat to atherosclerosis—an area I shall leave to others to discuss Instead, I shall call attention to certain other effects of dietary fat that are less in the public eye

Fats as a Source of Energy

Although beyond the scope of this paper, it is worthwhile to recall that not all fats yield the traditional figure of 9 calories per gram, that is only an approximation for average edible fats The energy obtainable from fat is a function of the length of the carbon chain The short-chain fatty acids yield less energy, tributyrin, for example, yields only 6 7 calories per gram

Fats and Physical Work

When caloric demands are high, it is well known that fat is a preferred food The discomfort from the additional bulk of a less calorigenic food is thereby avoided Less familiar are the observations of Deuel and his co-workers[1] and of Samuels and his associates[2] in rats indicating that a diet containing considerable fat improves capacity for work as compared to a fat-poor diet and gives greater swimming endurance when food is subsequently withdrawn Reproductive efficiency and lactation were also found by Deuel's group to be superior in rats on diets containing moderate amounts of fat

Fats and Caloric Efficiency

Forbes and co-workers[3] have shown in a series of publications that there is more efficient utilization of calories when fat forms a substantial fraction of the diet The economy in calories is about 5 to 10% Several factors may contribute to this result—absence of a specific dynamic effect when fat is added to protein as contrasted with the result when carbohydrate is added to protein, and also the possibility that fat participates directly in certain metabolic reactions that would require its production from carbohydrate were it not provided as such

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Fats as Vehicles

It is well known that fats serve as vehicles for the fat-soluble vitamins, A, D, E, and K, but it is less well known that many of the flavors of familiar foods are due to minute quantities of substances intimately associated with fat The extraction of various foods with fat solvents may remove the flavor completely or affect it adversely The loss of flavor of fruits and vegetables when they are preserved is attributed in large part to oxidative changes in fatty components

For the fat-soluble vitamins it is a question of whether increased fat absorption "drags in" such vitamin as may be present, thereby increasing the absorption of the vitamin Although such effects have been reported, studies undertaken by our group[4] in children indicated that the absorption of fat and of vitamin A were quite independent processes and did not influence each other

Fats and the Activity of the Stomach

It is an old observation that fats stay in the stomach longer than other foods Both the secretion and the motility of the stomach are inhibited by fat The effect is produced by an inhibitory hormone, enterogastrone, which is liberated from the duodenal and jejunal mucosa when absorption of fat commences The effect varies with different fats, depending on their ease of absorption The value of this mechanism is debated The delay in digestion appears to have some virtue in situations where there is a long interval between meals in that hunger pains do not develop This was said to be a serious problem in the German army during World War I because of the shortage of fats

Advantage is taken of the hunger-dispelling property of fats in certain reducing diets, the purpose being to avoid nibbling between meals On the other hand, it is claimed that the tastiness of fatty foods and their high caloric content offset this More data are needed to settle the question as to whether a high-fat or low-fat diet works best, but from present indications it appears that differences between individuals may be important here

Table 1 —*Effect of Sudden Increase in Dietary Fat**

	Net Balance Gm, 3 Day Period		
	Protein	Ash	Water
High-carbohydrate diet (protein 101 fat 115 carbohydrate 730 Gm)	− 5 22	+3	+165
High fat diet (protein 103 fat 302 carbohydrate 320 Gm)	−11 98	−7	−906

* Data from Benedict and Milner[7]

A group of infants, studied by Hansen and associates,[5] who were allowed food at will took fewer calories on a high-fat regimen However, we were unable to confirm this in one infant recently studied by Lanman in our clinic (fig 1)

Fats and Resistence to Infections

Among clinicians, particularly among pediatricians, the impression prevails that a preponderance of carbohydrate food tends to predispose to infection and a preponderance of fat to protect The literature on this subject is voluminous, but the net information that can be accepted is very scanty Experimental studies done before the vitamin era have to be discounted, since the intake of fat-soluble vitamins was varied with the fat, and the studies published since have not given consistent results In Europe, the flare-up of tuberculosis during and after World War II is widely attributed to the shortage of dietary fat Overcrowding and shortages of protein were usually present also, and data are not available in which these other factors could be ruled out The Gerson-Hermannsdorfer-Sauerbruch diet, which included a high fat content among other features, had a considerable vogue in Germany for the treatment of tuberculosis in the prewar years, but little has been heard of it since

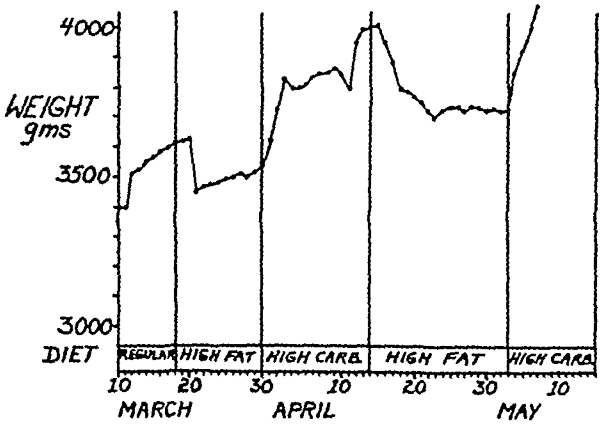

Fig 1 —Effect of fat and carbohydrate on weight of infant

Increased resistance to the common cold from a liberal-fat diet was claimed by Hoelzel[6] some years ago, but a large-scale statistical study to confirm this is still wanting There is no doubt that lipids play a role in immune processes and in permeability phenomena, but the relation to dietary fat remains to be established

Ketogenic Diets and Disease

Ketogenic diets have been used with success in a number of clinical conditions, notably urinary infections and epilepsy, and the mechanism of their action is of some interest In urinary infections, it appears that the benefit can be attributed to the concentration of acid in the urine that does not permit certain bacteria to survive The benefit obtained in epilepsy must be explained differently, it appears to be due to a measure of tissue dehydration brought about by the high-fat diet Such dehydration occurs whenever fat is substituted for carbohydrate and can be detected even before ketogenic levels are attained

The shifts of body water resulting from changing the proportions of fat and carbohydrate in the diet were known to the German physiologists of the last century and were well studied by Benedict and Milner[7] in the United States half a century ago (table 1) They are familiar to pediatricians and are illustrated in figure 1 The phenomenon of water loss in subjects on a high-fat diet is a temporary one, in three or four days a new equilibrium is established and the original weight gain is restored Conversely, when fat is replaced by carbohydrate, a sudden spurt in weight occurs for three or four days, after which the slope of the normal weight curve is resumed

This phenomenon has been studied particularly by Cathcart[8] in Glasgow and by his successor, Munro[9] Balance studies have shown that the shift in water retention is accompanied by a shift in both extracellular and intracellular electrolyte and that a labile nitrogen fraction accompanies this loss (tables 2 and 3) Partition of the urinary nitrogen excretion during the period of water loss reveals an increased loss of all nitrogenous constituents measured except uric acid, the excretion of which was curtailed at this time Conversely, during the period of increased water retention resulting from a high-carbohydrate diet, urinary loss of the major nitrogenous constituents is diminished but loss of uric acid is increased (table 4) The excretion of individual amino acids has not as yet been studied in this situation Thompson and Munro[10] have shown that this phenomenon is only indirectly attributable to the change in fat intake It can be brought about by changes in the carbohydrate intake alone, the fat being kept constant The significance of these changes remains obscure It is not clear that the individual burning a preponderance of carbohydrate is healthier than the less hydrated individual on the high-fat, low-carbohydrate regimen, but there are a number of indications that cellular reactivity is reduced in the relatively dehydrated state so induced The abnormal reactivity of the cerebral cortex of the epileptic appears to be so reduced and, conversely, a measure of overhydration tends to precipitate active epileptic seizures, as pointed out by McQuarrie and Peeler[11] The bronchial reactivity associated with anaphylactic shock in the guinea pig was shown by Rubin and Kellett[12] to be inhibited by dehydration Likewise Kulchar and Alderson[13] showed that the cutaneous response to micrococcic (staphylococcic) infection was inhibited by dehydration A similar effect may be observed in infantile eczema, which will be discussed subsequently

TABLE 2 —*Comparison of Effects of Carbohydrate and Fat on Sodium and Water Retention of Infant**

	Intake Gm			Retention Gm	
Period	Nitrogen	Fat	Carbohydrate	Water	Sodium
1	4 3	4 7	91 0	50 0	0 20
2	4 0	25 0	42 0	28 0	—0 09

* Data from Hellesen E *Nord Med Arch Afdeln II Innere Med* 48 1 1915

Fats and Water Requirement

The water requirement of persons receiving different foodstuffs is a matter of concern in situations of water scarcity, such as when persons are castaways at sea It is generally admitted that protein food is disadvantageous here because of the obligate urinary water requirement to excrete urea The excellent observations of Gamble[14] pointed to carbohydrate as the food of choice for the castaway because of an economy of water and extracellular electrolyte resulting from glucose administration It must be pointed out, however, that their periods of observation were all short—no more than six days, hence, the effects they observed may have been only the temporary shifts caused by carbohydrate which have been referred to previously Whether this advantage of carbohydrate would have persisted for the far longer periods to which the castaway may be subjected remains to be shown

Some observations of rats that were fed single foodstuffs[15] and allowed to regulate their water intake are of interest in this connection, since the experimental conditions lasted for the life span of the animals The water intake of these rats is shown in figure 2 The high demand for water by the animals fed protein is well illustrated, and equally clear is the lesser water intake when the rats were fed fat rather than carbohydrate One reason for this is that more metabolic water is supplied by fat Some of the higher water intake of the rats fed carbohydrate may have been due to the fact that the animals took more sugar than they could handle, for they spilled sugar in the urine, which would have increased their water requirement Certainly, these observations do not suggest a long-term economy of water resulting from carbohydrate as opposed to fat

Fats and Eczema

The literature on the control of eczema by varying nonprotein constituents of the diet is conflicting, and one variable at a time has seldom been studied There are favorable reports on withdrawing fat and equally favorable reports on adding it A more consistent finding is the disappearance of eczema associated with an acute febrile disease such as measles and its reappearance during convalescence It seems possible that the metabolic shift brought about by the fever, with dependence on fat and a deficit of available carbohydrate, might have caused this change in skin reactivity Some years ago we observed children on a fat-free diet[16] In one of these children, eczema and asthma appeared regularly when fat was removed from the diet and disappeared quite as promptly when it was restored We have since made use of the dehydrating effect of a high-fat, low-carbohydrate diet as an adjuvant in the treatment of eczema and have been impressed by the results

TABLE 3 —*Effect of Carbohydrate-Rich Diet in an Infant**

	Daily Balance Gm					
	N	Na	K	Ca	Cl	P
Normal diet	0.84	0 13	0 25	0 08	—0 05	0 08
High carbohydrate diet	1 60	0 22	0 39	0 09	0 0[illegible]	0 [illegible]0

* Data from Rosenstern I *Ztschr Kinderh* 18 333 1918

Another explanation must be considered, however, for the beneficial effect of such a diet Increasing the total fat intake also increased the intake of polyunsaturated fatty acids The view that they are the active agents in benefiting the disease and that eczema is the human counterpart of the essential fatty acid deficiency disease observed in several animal species is advocated by Hansen[17] Presently available information does not make it possible to decide the question To do that will require observations on the effect of a fat containing no polyunsaturated acids or observations on the effect of minute amounts of pure polyunsaturated acids with no change in the total fat intake

Fats and Poisons

The literature on poisoning contains many references to the value of major shifts of the calorigenic foodstuffs In some instances (for example, diphtheria toxin),[18] a high-protein diet is best, in other instances (chloroform, for example) [19] a high-carbohydrate diet, and in still others (cyanide, arsphenamine),[20] a high-fat diet With fat-soluble poisons, such as chloroform and carbon tetrachloride, the effect is unfavorable, but with others no generalization is possible

Fats and Radiation Injury

Of considerable interest are recent observations [21] indicating that polyunsaturated fatty acids will protect against x-ray injury The effect appears to be more pronounced for low-grade, repeated radiation than against a single large dose

Toxic Effects of Fats

No attempt will be made here to review the extensive literature on rancid fats, on various toxic natural fats (such as castor oil), or on hydrogenated fats Mention should be made, however, of certain alleged untoward properties of natural fats their ability to induce vomiting, their ability to induce intestinal intolerance, and their hemolytic properties

The statement that an excess of fat leads to nausea and vomiting is often made in the pediatric literature, however, excesses of other foods will do this also It may be true that a smaller excess of fat will cause nausea and vomiting than of other foodstuffs, possibly the specific inhibitory effect of fat on gastric motility predisposes to nausea and vomiting when an excess is given, but I have not been able to find documentary evidence of this

That the continued administration of generous amounts of fat would induce a condition of intestinal intolerance to fat was a belief strongly held by pediatricians a generation ago The evidence today is, however, strongly against this concept Haas [22] observed that the administration of liberal quantities of fat in celiac disease produced only benefit In a systematic study of several different forms of fat intolerance made by our group at New York University [23] it was shown by balance studies that the addition of fat in such cases failed to affect the percentage absorbed and consistently improved the absolute absorption figures Similar data have been reported in the steatorrhea of kwashiorkor by Gomez and co-workers in Mexico [24]

TABLE 4 —*Influence of Fat and Carbohydrate on Urinary Excretion of Purines in Human Subject**

	Nitrogen Gm /Day	Uric Acid Gm /Day	Total Purines Gm /Day
High carbohydrate diet (protein 50 fat 30 carbohydrate 443 Gm)	7 81	0 98	0 110
High fat diet (protein 50 fat 190 carbohydrate 80 Gm)	8 77	0 70	0 091

* Data from Umeda T *Biochem J* 9 421 1915

Considerable interest in the hemolytic properties of fat developed some years ago with the discovery that various hemolytic snake venoms were lipids Pernicious anemia and the anemia caused by the fish tape worm were at one time attributed to hemolytic lipids A better understanding of these conditions has exonerated dietary fat Nevertheless, there remains a small amount of evidence indicating that a minimum hemolytic tendency may result from great excesses of fat Josephs and his co-workers [25] investigated this question in infants, using total urobilin excretion as a measure of blood destruction, and were able to demonstrate consistent rises in the stool urobilin output when the calories derived from fat were raised from 35% to 80% of the total ingested The administration of free fatty acids and soaps produced this effect at lower levels of intake, but in no instance was the magnitude of the urobilin excretion comparable to that seen in any of the hemolytic anemias, nor was it sufficient to lead to anemia The phenomenon is actually a matter of academic interest Other recent evidence that dietary fat in large quantity may be hemolytic comes from Loewy and his co-workers,[26] who demonstrated a hemolytic principle in thoracic duct lymph and in lipemic serum after a high-fat meal

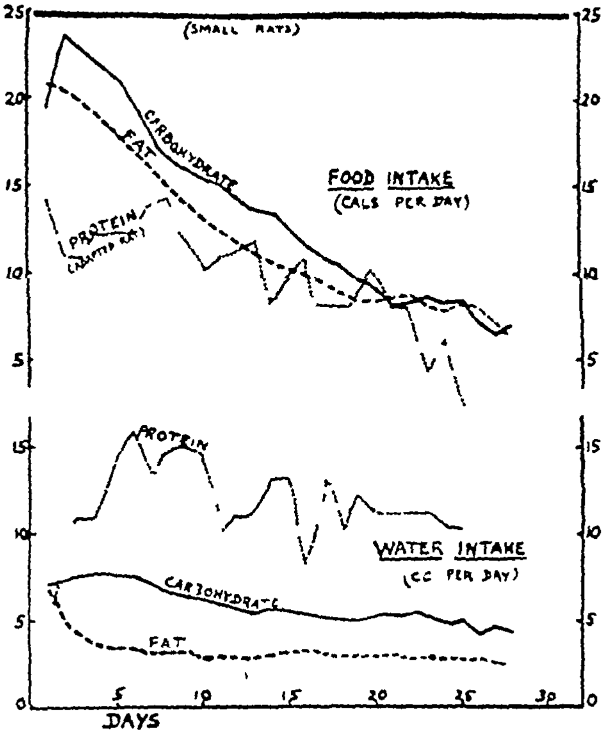

Fig 2 —Food and water intake of rats fed single pure foodstuffs

Minimal Fat Requirement for Man

There is no question about the essentiality of the polyunsaturated fatty acids for various animals, but the evidence of a human requirement for these compounds is as yet unconvincing Several long-term studies have been carried out with infants on fat-free diets Von Groer in 1919 fed two infants on fat-free milk The results were reasonably good for a period of six months, after which signs of rickets became evident and gain in weight suffered Eczema developed in one infant No fat-soluble vitamins were given to these infants

Von Chwalibogowski[27] some years later repeated von Groer's study in two infants, one of whom received ultraviolet irradiation to prevent rickets The study was started at birth and the feeding consisted of triply centrifuged milk (fat content less than 0 03%), a small amount of fat-free vegetable being added after the fifth month One child was continued on this diet for 13½ months and the second for 15 months The growth and development of these children were quite normal The child who received antirachitic radiation showed no evidence of rickets, but the untreated child showed some evidence of the disease The resistance to several intercurrent infections—grippe measles, and pyuria—did not seem to be impaired There was some loss of appetite toward the end of the study

Brown and his associates[28] reported observations on two older infants kept on a fat-free diet for 10 weeks whose only untoward manifestations were attacks of impetigo They also studied an adult who remained on the diet for six months The diet, however, contained at least 2 Gm of fat a day The subject of this experiment lost some weight at the start, his blood pressure, which had been slightly elevated, returned to normal, and migraine headaches disappeared The levels of arachidonic and linoleic acid in the blood fell somewhat, which led the authors to conclude that in time a deficiency of these acids would have declared itself

Hansen and Wiese[29] conducted what is probably the longest study of a human on a fat-free diet A small child with chylous ascites was kept on such a diet for a period of two years The general condition remained good, although a tendency to eczema and skin infections was noted

These observations certainly do not disprove the existence of a human need for essential fatty acids It may be that with a longer period of time or a more rigorous elimination of dietary fat, symptoms would have developed At the most they can be said to be suggestive of a vulnerability of the skin of a person on a fat-free regimen It is probable that a minimum requirement for polyunsaturated fatty acids exists in the human, but no exact figure on this minimum and no definite statement regarding its existence can be made at the present time

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SOME BIOCHEMICAL ASPECTS OF LIPID AND LIPOPROTEIN METABOLISM

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The impetus given to research in lipid metabolism by the increasing interest in the problem of atherosclerosis has yielded a bounty of information in recent years The clinician and the nutritionist cannot escape a requirement for an ever-broadening familiarity with certain practical aspects of lipid chemistry and physiology The nature of dietary fat is becoming more meaningful than its simple caloric content, and determination of the plasma cholesterol level alone no longer represents an adequate examination of the blood lipids It is the purpose of this paper to summarize some aspects of our basic knowledge concerning lipid transport mechanisms and fat metabolism that are of clinical importance

Blood Lipids and Lipoproteins

In 100 cc of plasma of a normal fasting human, there is about 300 mg of fatty acids Roughly 80% of these fatty acids are present in phospholipids or in simple esters of glycerol This latter group of esters is usually referred to as "triglyceride (which is preferred to the term "neutral fat") even though small, variable amounts of diglycerides and monoglycerides are also present Another 15% of the fatty acids are esterified with cholesterol, and a highly significant 5% circulate unesterified and bound to protein The type of fatty acid present in any one of these lipid moieties is variable, depending, among other things, on the nature of the diet and on the composition of the body fat depots The fatty acids esterified with cholesterol are relatively more unsaturated than those of the phospholipids or triglycerides

All of the plasma lipids, which include some unesterified cholesterol in addition to the moieties containing fatty acids, are too insoluble in water to exist in simple solution in the tissue fluids Therefore, all of the lipids are transported in combination with protein and, presumably, in that form are capable of entering into biological reactions In plasma and lymph, cholesterol, phospholipid, and triglyceride are found in association with globulin, forming macromolecules called lipoproteins Whereas some of the unesterified fatty acids have been described as present in the lipoproteins, the bulk of them circulate in plasma, presumably bound to albumin Thus, a large family of lipid-protein complexes have been isolated from plasma and partially characterized A convenient grouping into major fractions on the basis of present evidence of chemical or physiological uniqueness is shown in table 1

These fractions are listed in table 1 in the order with which they would be obtained by repeatedly centrifuging plasma at high speeds with serial increases in density by methods [1] based on the original observations of Lindgren, Gofman, and Elliott [2] The application of several techniques that utilize different physical properties of the lipoproteins to effect their separation has produced some overlapping and confusion in terminology By electrophoresis, broad classes of "beta," "alpha$_1$," and 'alpha$_2$" lipoproteins have been separated The technique of Cohn fractionation, based on differential solubility, also permits isolation of similar broad groups It is to Gofman and his colleagues that we are indebted for refinements of ultracentrifugal techniques that permit the most complete separation of the lipoproteins [3] In their classification the lipoproteins fall into two great groups, most simply termed the low and high density lipoproteins The low density lipoproteins, which include the beta and probably the alpha$_2$ lipoproteins, are further separable into a whole spectrum of classes lying within certain Svedberg flotation unit (S_f—used to express the positive migration rate for lipoproteins undergoing flotation in an ultracentrifugal analysis) values that ascend numerically with increasing rate of flotation in the centrifugal field This property is, in turn, dependent upon decreasing density of the lipoprotein molecules For simplicity, these classes are placed in two groups in table 1, and termed arbitrarily very low density ($S_f > 10$) and low density (S_f 0-10)

TABLE 1 —*Major Lipid Protein Fractions in Plasma*

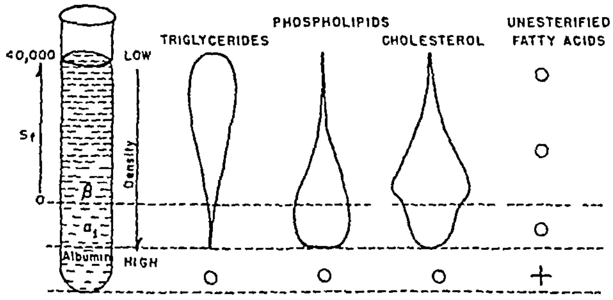
	Terminology			
Fraction	Sf*	—S†	Electrophoresis	Cohn‡ Fractions
Chylomicrons	ca 40 000			
Very low density lipoproteins	10-400	>40	α	
Low density lipoproteins	0-10	25-40	β	III 0
High density lipoproteins		1 10	α_1	IV 1
Albumin unesterified fatty acids				V

* Gofman [3]
† From Lewis and Page *Circulation* 7 707 1953
‡ Oncley and others [4]

Studies, principally by the Gofman group, indicate that there may be many more species within the very low density lipoproteins that have distinct metabolic behavior The high density lipoproteins, which include the alpha$_1$ lipoproteins, also are not homogeneous but represent at least two or three species, the concentrations of which vary independently under certain conditions The chylomicrons are considered separately because they normally are present only when large amounts of absorbed fat, principally as triglyceride, are entering the blood from the thoracic duct Accurate analysis of the protein moiety of the chylomicrons has not yet been reported, and their exact chemical and physiological relationship to the very low density lipoproteins is not known The albumin-unesterified fatty acid complex, which is not strictly a lipoprotein, completes the list

The physical structure of the lipoproteins, which permits the solubilization of many molecules of lipid by few molecules of protein, can only be speculated upon from existing information From the data of Oncley, Gurd, and Melin [4] concerning the beta lipoproteins corresponding approximately to the S_f 0-10

From the National Heart Institute, National Institutes of Health Public Health Service class, it would appear that these macromolecules may be large spheres containing lipid, predominantly cholesterol and phospholipid, partially covered by a thin film of protein Probably the lipid moieties are bound to each other and to the protein by Van der Waal's forces An important constituent of the macromolecular structure is water, because dehydration destroys the stability of the molecule From work in our own and other laboratories it is apparent that the lipids of the lipoproteins exchange freely with other lipoproteins and are readily accessible for enzymatic reactions such as hydrolysis



Schematic distribution of blood lipids and lipoproteins

The chemical distribution of the plasma lipids with relationship to the lipoproteins is represented schematically in the figure Here the lipoproteins are presented as they might be obtained in a highly theoretical gradient tube, with lowest density components at the top and increasing density moving downward Albumin, and not the remaining plasma globulins, is shown at the bottom to emphasize the probable role of this protein as the carrier of most of the unesterified fatty acids Analytical values for some of the fractions are shown in table 2 The most striking feature is the inversely proportional concentrations of triglyceride and of protein in the lipoproteins Those of lower density are large, scatter light, and impart turbidity or lactescence to the serum when they are present even in low concentrations The lipoproteins of higher density are rich in cholesterol and phospholipid, but in differing proportions

Although the measurement of lipoprotein concentrations by eye is impossible, the relationships emphasized in the figure give some information about abnormal lipid and lipoprotein concentrations from the appearance of fasting serum, particularly when a simple cholesterol determination is also available For example, as a general rule, when the serum cholesterol level is elevated the increase will be reflected in increased concentration of the low or very low density lipoproteins When marked elevations occur in perfectly clear serum, the low density lipoproteins (S_f 0-10) will be elevated, and the serum will likewise usually take on a deeper yellow color from the added carotene carried by this fraction For unknown reasons, patients with essential hypercholesteremia and this 'xanthoma tendinosum pattern'[5] in the serum will tend to develop tendon sheath xanthomas Lactescence implies elevated triglycerides and increased amounts of the lower density, higher S_f lipoproteins Gofman has popularized the term "xanthoma tuberosum pattern"[5] for this picture, and the clinical correlation of this type of lesion with persistently elevated triglyceride levels is impressive Persons with essential hypercholesteremia may, of course, have both types of xanthomas simultaneously The most marked turbidity occurs in idiopathic hyperlipemia, where the bulk of the triglyceride-rich lipoproteins may be chylomicrons Lactescent serum is not always accompanied by remarkable elevations in the total serum cholesterol level, since the percentage of cholesterol in the chylomicrons and other very low density lipoproteins is small (table 2) Thus, some patients with idiopathic hyperlipemia may escape diagnosis for years until an observant person takes note of the appearance of the serum Unfortunately, today's centralization of laboratory facilities, by separating the physician from a glimpse of his patient's serum, denies him a small, but interesting, diagnostic opportunity

Lipoprotein Metabolism

At present, only a little is known about the specific metabolic functions of the lipoproteins and the physiological relationship of one lipoprotein class to another It appears that the unifying hypothesis of a single "parent" molecule, such as the chylomicron, which would simply be shorn of more and more of its triglyceride to become lipoproteins of successively decreasing size and greater density, is not tenable for the whole lipoprotein spectrum, although it may be true for part One of the principal means of studying lipoprotein "genealogy' has been through the lipoprotein protein moiety Analyses of the low density and high density lipoproteins indicate that their constituent proteins are similar, but not identical,[6] and these two great lipoprotein groups are probably not interconvertible Gofman's group has presented considerable presumptive evidence of interconversion of very low density lipoproteins from higher to lower S_f classes[3] By actual labeling of the protein moieties, Gitlin and Cornwell[7] have shown more conclusively that very low density lipoproteins of $S_f > 10$ are converted to low density lipoproteins of the S_f 0-10 class, which then disappear with a half-life of about 3 days Presumably this takes place simply by loss of triglyceride

TABLE 2 —*Approximate Percentage Composition of Several Lipoprotein Fractions**

Fraction	Protein	Tri glyceride	Choles terol	Phospho lipid
Chylomicrons	2	81	9	7
Very low density lipoproteins (S_f >10)	7	52	22	18
Low density lipoproteins (S_f 0-10)	21	9	47	23
High density lipoproteins	46	8	19	26

* From Bragdon and others *J Lab & Clin Med* 48 36 1956

The chylomicrons are normally of great metabolic importance only transiently They disappear rapidly from the blood after they enter from the lymph There is some evidence in humans that they might be serially converted to lipoproteins down to the class of S_f-30 low density lipoproteins during the disappearance of alimentary lipemia[8] On the other hand, studies in dogs suggest that chylomicron triglycerides labeled with radioactive carbon (C^{14}) may first disappear into unknown organ sites, where they are rapidly hydrolyzed and their constituent fatty acids rapidly returned to the plasma for retransport bound to albumin[9]

The "clearing" of alimentary lipemia, which implies the disappearance of the light-scattering chylomicrons and very low density lipoproteins from the plasma, has received much attention from the clinical standpoint The important biochemical reaction involved in "clearing" is the hydrolysis of triglyceride The enzyme system that probably catalyzes this reaction under physiological conditions has been partially characterized The isolation by Korn[10] of an enzyme from heart and adipose tissue that has identical properties to the 'clearing factor" found in plasma after the administration of heparin has led to the adoption of his newer term, "lipoprotein lipase,' for this factor The properties of lipoprotein lipase may be summarized as follows

Substrate Triglycerides + Lipoprotein Lipase →
Enzyme-Substrate Complex + Albumin or Ca^{++} →
(Albumin or Ca^{++}) Fatty Acids + Glycerol (or Diglycerides Monoglycerides)

(Substrates include the triglycerides of chylomicrons and very low density lipoproteins, or of synthetic emulsions that have first been incubated with small amounts of nonspecific plasma or egg lipoproteins)

This enzyme catalyzes the hydrolysis of triglyceride in any lipoprotein It is significant that synthetic triglyceride emulsions are also split, but only after small amounts of any nonspecific lipoprotein are first bound to the emulsion by incubation This suggests that the small amount of protein, phospholipid, and perhaps cholesterol in the chylomicron, for example, is of the utmost importance for these lipoproteins to function as substrates The reaction will proceed when there is adequate receptor to bind the product of fatty acids This is largely albumin when hydrolysis takes place within the plasma This enzyme may have widespread function in the removal of alimentary fat, the interconversion of lipoproteins, and the release of unesterified fatty acids from depot fats

The relationship of heparin to "clearing" is extremely interesting Korn has shown that heparin, or a similar compound, is actually an intimate part of the lipoprotein lipase molecule or complex With some few exceptions, when present methods are used, lipoprotein lipase activity is normally very low or not even detectable in the blood, even when large amounts of fat are being cleared Therefore, lipoprotein lipase activity in tissues, rather than in the blood, is probably of far greater physiological importance For unknown reasons, the parenteral administration of heparin and a few other compounds causes the enzyme activity to appear quickly in plasma, where hydrolysis occurs with production of glycerol and fatty acids, and the concentrations of higher S_f lipoproteins decline while those of the lower S_f molecules rise[3] Tests of "clearing" in plasma after heparin injection, however, are hard to interpret clinically One pitfall to interpretation is the variability of substrate lipoproteins present in the plasma in any group of individuals given heparin The enzyme activity that appears in the blood may not then be accurately measured by observing changes in optical density alone So far, only three hyperlipemic patients, in the same family, have been reported who demonstrate practically no plasma lipoprotein lipase activity, as measured by glycerol or fatty acid production, after large doses (100 mg) of heparin[11] It remains to be proved whether or not altered activity of tissue lipoprotein lipase or of heparin is the cause of any other lipid disorder, or that the reported clinical effects of heparin in coronary artery disease are operating through the lipoprotein lipase mechanism

Most of the work on the unesterified fatty acids of plasma is so recent that their clinical significance has not yet been assessed They appear to be of such metabolic significance, however, that they must be mentioned Studies by Dole[12] and by Gordon and Cherkes[13] indicate that the plasma concentration, which is normally in the neighborhood of 0 3-0 6 mEq per liter after an overnight fast, is higher in conditions associated with the increased burning of fat, such as fasting, and rapidly decreased by the ingestion of carbohydrate or other nonfat caloric sources In the fasting human, as much as 70% of the calories being used by the heart may be derived from unesterified fatty acids The evidence suggests that it is in this form that fat is primarily transported from the (adipose) depots to other tissues for oxidation as energy sources The turnover rate in blood appears to be very high,[9] and the fatty acids are rapidly transferred across the endothelium even though their binding to albumin is very strong It is conceivable that a quantitatively small defect in the normal transport of fatty acids might be associated with significant changes in the other forms of lipid transport

Lipoprotein Metabolism and Disease

Abnormal lipoprotein concentrations are now known clinical features of many diseases Usually it has not been determined whether the lipoprotein changes are due to specific defects in lipoprotein metabolism per se or to underlying alterations in tissue metabolism of fats that are secondarily reflected in increased or decreased transport of the various lipids One interesting possibility in the first category is the observation by Gitlin and Cornwell[7] that the normal conversion of very low to low density lipoproteins was impaired in several patients with the nephrotic syndrome This could account for the abnormal concentrations of very low density lipoproteins seen in some patients with this disease A second example probably belonging in this category is liver disease, such as xanthomatous biliary cirrhosis, which may inexplicably be accompanied by very low concentrations of high density lipoproteins, even though the serum cholesterol level may be abnormally high The increases in the lower density lipoproteins that are seen in untreated diabetic acidosis and glycogen storage disease probably belong in the second category In these states excessive amounts of fat are required for metabolism through a defect in carbohydrate utilization It may be postulated that, in addition to high turnover of unesterified fatty acids, large quantities of triglyceride are also being transported to participate in the necessary change in the metabolic pool When the diabetic acidosis is treated the abnormal lipoprotein concentrations promptly fall Reciprocal changes in lipoprotein concentrations also are perplexing clinical findings sometimes seen in patients with severe transient or persistent hyperlipemia In idiopathic hyperlipemia, for example, when the very low density lipoprotein concentrations are high, the total high density lipoprotein concentration may be very low, rising as the concentration of the former is lowered by diet or heparin therapy The causes for other important changes in lipoprotein concentrations remain unsolved Only two of these will be mentioned further One, the difference in concentration between the sexes, is of great interest, the other, the changes present in atherosclerosis, is perhaps of the greatest importance

The major differences in lipoprotein concentrations between men and women in the ages from 15 to 65 is a higher concentration of all the major low density lipoprotein classes and a lower total high density lipoprotein concentration in the male As demonstrated by Russ, Eder, and Barr[14] and others, the administration of estrogens to men causes the lipoprotein pattern to resemble that of the premenopausal female Testosterone opposes this effect and produces an exaggeration of the male pattern

The evidence that patients surviving a myocardial infarction have elevated levels of lower density lipoproteins, especially of the S_f 12-400 classes,[3] as first proposed by Gofman, is highly significant The relative value of the serum cholesterol as compared with the lipoprotein measurements or "atherogenic index" in predicting the likelihood of development of clinical manifestations of atherosclerosis appears to be still a matter of controversy[15]

Reduction of Hypercholesteremia by Biochemical Agents

The association of elevated levels of cholesterol or cholesterol-rich lipoproteins with atherosclerosis has focused attention on means of lowering the serum cholesterol level The dietary approach to this problem has been covered adequately elsewhere in this symposium Since attacks by means other than diet are under study and in clinical use, several of these should be mentioned briefly

The use of plant sterols, such as sitosterol, has been reported extensively in the literature Some workers report moderate reduction in the serum cholesterol level from 10-20%, others find less consistent results Rarely are they effective in reducing the cholesterol level to normal in patients with essential (familial) hypercholesteremia The mechanism of action of these sterols, which closely resemble cholesterol in structure, is not completely known, although it is postulated that they interfere with intestinal absorption of exogenous cholesterol or of the reabsorption of endogenous sterol Certain aromatic acids have been given wide clinical trial, particularly in Europe, with reported success[16] These compounds do have significant inhibitory effects on the synthesis of cholesterol from acetate, apparently by interfering with acetylation reactions involving coenzyme A[17] However, this inhibition usually is not reflected in lowered plasma cholesterol levels in rats Clinical trial with two of these compounds, alpha-phenylbutyric acid and beta-phenyl levaleric acid, failed, in our hands, to cause any lowering of the cholesterol level in patients[18] This disparity between biochemical activity and clinical effect is very likely due to the fact that these particular compounds are inhibiting synthesis at so early a step in the conversion of acetate to cholesterol that other precursors normally supplied by the body will not be affected For this reason attention is being turned to compounds that are much closer to cholesterol in structure Some such compounds already have been shown by Tomkins, Sheppard, and Chaikoff[19] to inhibit the synthesis of cholesterol from acetate One of these, Δ 4-cholestenone, has been found to lower the serum cholesterol level in animals[20] This is associated with serious side-effects, however, and all such compounds, particularly since they, too, might participate in atheroma formation, will have to be proved to be nontoxic before they can have clinical value Since the biochemical knowledge of the normal pathways for the synthesis and degradation of cholesterol is now reasonably good, there is hope that in the future some effective chemical hypocholesteremic agents may be found as adjuvants to present dietary therapy

The biochemical and physiological developments mentioned all signify progress in clarifying the mechanisms of lipid metabolism and transport On the subject of fat, the nutritionist, the clinician, and the biochemist are rapidly approaching common ground, and on such favorable terrain, our understanding of the role played in health and disease by this important constituent of diet and of body tissues can only continue to grow

Summary

The metabolism of fat and the mechanisms of fat transport have been investigated intensively in the search for a key to the cause of atherosclerosis A group of lipid-protein complexes that represent the form in which fat is normally present in the blood and lymph have been elucidated These complexes include the lipoproteins and the albumin-bound unesterified fatty acids Certain of the lipoprotein classes have special clinical significance in relation to atherosclerosis and the hypercholesteremic and hyperlipemic xanthomatoses There are variations in lipoprotein concentrations in such conditions as diabetic acidosis and the nephrotic syndrome that are not only of clinical interest but that also suggest a metabolic function for the very low density lipoproteins The process by which newly absorbed fat is removed from the blood is now partially understood Hydrolysis of triglycerides catalyzed by the enzyme lipoprotein lipase is probably an integral part of the 'clearing process' Heparin, which causes lipoprotein lipase activity to appear in the blood, may form part of the actual enzyme complex Decreased plasma lipoprotein lipaase activity has been correlated with at least one form of hyperlipemia The plasma unesterified fatty acids, which are the only blood fats which circulate bound to albumin, appear to be of great importance in the transport of fat to the tissues to be oxidized This fraction of the plasma lipids may have future clinical significance

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PATHOLOGICAL LESIONS RELATED TO DISTURBANCES OF FAT AND CHOLESTEROL METABOLISM IN MAN

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The subject of pathological lesions related to disturbances of fat and cholesterol metabolism in man may be approached from the standpoint of systemic alterations versus local, and whether the lipid deposits are primary or secondary Despite much new information concerning atheroma obtained recently by both experimental and clinical investigations, it is still impossible to state with certainty whether this disease is primarily a systemic disorder or one of multiple local origin The most popular current concept is probably that which regards atheroma as a local manifestation in the arterial wall of a general disturbance of lipid metabolism, transport, or both

In a consideration of pathological lesions associated with abnormal deposits of stainable fat of all kinds, whether of local or systemic nature, it must be determined whether the presence of the abnormal lipid represents the initial (or primary) abnormality or whether it is merely secondary to some other injury such as thrombosis, prenecrotic degeneration, or necrosis and, thereby, only incidentally associated with a purely secondary and local disturbance of fat metabolism In which category should atheroma be placed? There are, indeed, a number of prominent investigators who feel that the deposits of lipid in atheroma may, in fact, be only secondary to other quite different initiating mechanisms, such as disorders of blood-clotting or hemorrhage

Virchow, a century ago, originally introduced the concept of fatty infiltration versus fatty degeneration characterizing the former as an accumulation of lip[illegible] in or between parenchymal cells as the morpholo[illegible] manifestation of a primary disorder of fat metabol[illegible] Fatty degeneration, on the other hand, is eith[illegible] unmasking (phanerosis) or the accumulation [illegible] in dead or dying cells, the etiology rang[illegible] simple trauma to frank infection Althou[illegible] tinction is no longer clear and simp[illegible] concept of these two types of lipid d[illegible] useful

The problem that has vexed st[illegible] for decades is concerned essenti[illegible] fications of disorders of fat m[illegible] posits of lipids in the art[illegible] manifestation of a primary [illegible]

From the Department of Pathology of Washington University Medical School fat metabolism, and is the disorder of local or systemic origin? Evidence, which cannot possibly be reviewed here, may be adduced to support almost any of the obvious combinations afforded by these categories

The arterial wall possesses certain special features known to us all and perhaps others still unrecognized The inner two-thirds or more of the wall is normally avascular and devoid of lymphatics In the cases of coronary arteries or aortas, any exudates in the wall or deposits on its inner lining will be subjected to much higher pressures than in other sites Pressure may distort the lesion so that it no longer resembles simple but perhaps quite similar alterations in other tissues, where the nature of the changes might be more readily recognized Finally, in ordinary tissue sections, contraction of the elastic and muscular web forming the media may further distort appearances With these differences borne in mind, the effects of abnormal deposits of fat and cholesterol in sites other than the vessel wall, where tissue responses are not complicated by factors unique to the latter, will be briefly reviewed For this purpose a few examples involving simple triglycerides as well as cholesterol have been chosen

Effects of Excessive Deposits of Triglycerides

In many situations, if not all, abnormal accumulation of fat within cells appears distinctly harmful both functionally and structurally One of the clearest examples may be found in the liver Rats fed a diet deficient in lipotropic factors rapidly accumulate excessive amounts of fat within the parenchymal cells of the liver When the accumulation of lipid becomes sufficiently great, the cells rupture and coalesce into fatty cysts The latter in turn serve temporarily as emergency storehouses for the extra lipid until they, in turn, rupture and their cellular remnants along with their supporting stroma condense, forming scars that become increasingly prominent as this process is repeated innumerable times These trabeculae, plus the nodularity induced by compensatory regeneration of surviving hepatic cells in other portions, eventually produce the classic picture of Laennec's cirrhosis duplicated in the animal We believe that essentially similar pathogenic sequences have been clearly demonstrated in the cirrhosis that develops in a high percentage of alcoholic patients [1]

The rat that is deficient in choline provides still another example of the effects of excessive accumulation of lipid in another organ—the kidney In the kidney the amount of lipid, estimated by either histological or biochemical methods, is never as great as in the liver The lipid accumulates in the proximal convoluted tubules of the nephrons, inducing a concomitant swelling of tubules As the latter are contained within the relatively tense capsule of the kidney, there is little room for expansion, and the capillaries between them are compressed by the swollen fatty tubules The ischemic tubules inevitably become necrotic and hemorrhagic—culminating grossly in the hemorrhagic renal syndrome of choline deficiency that was first described by Griffith and Wade [2] This sequence of events serves to illustrate another method whereby abnormal accumulation of lipid induces cellular destruction In this instance it does not result from mechanical distension and bursting of cells, as in the liver, but instead by interference with blood supply of the fatty swollen tubules that had compressed and obstructed their own nutrient capillaries

Still another mechanism by which abnormal accumulation of fat may produce or at least accompany necrosis is seen in the hearts of these young animals deficient in choline Stainable fat accumulates very rapidly within the cytoplasm and along the myofibrils The amount of fat is not sufficient to distend and burst them, nor could it be demonstrated that the lipid had directly or even indirectly induced capillary ischemia Instead, by mechanisms not apparent at present, the fatty myocardial fibers rapidly degenerated ultimately, leading to large areas of diffuse myocardial necrosis that was sufficient in some instances to produce death from myocardial failure The suggestion here is that the droplets of stainable fat interfere directly or indirectly in some unknown but catastrophic way with intracellular metabolism, perhaps involving either the mitochondria or myofibrils

In the coronary arteries of weanling rats that are deficient in choline, lipidosis develops rapidly, if the rats are older at the beginning of the experimental regimen, lipidosis develops more slowly In these arteries, the lesion resembles atheroma in many ways, but in the aorta it assumes the form of medial necrosis (Monckeberg type) Although we have seen these lesions develop in animals without appreciable renal damage, the presence of the latter definitely appears to favor the vascular changes and may be a more potent etiological factor than we initially appreciated Since our first reports from Toronto on this subject,[3] further investigations by my former colleague, George Wilgram, in Dr C H Best's laboratory have emphasized the importance of renal damage in favoring the production of this type of arterial change

Effects of Excessive Deposits of Cholesterol

Lesions associated with abnormal deposits of cholesterol in sites other than vessel walls are exemplified in the livers of animals fed cholesterol and in the various types of xanthomas such as are seen in the skin, eyelids, and tendons in man Even without histochemical procedures, the cholesterol-fatty liver can be identified The lipid is not deposited in the form of drops or globules as with triglyceride, it is usually in the form of crystals of various sizes These crystals, perhaps because of their physical form, do not fuse together into larger cytoplasmic masses displacing the nuclei as does triglyceride Instead, the crystals take up every available portion of the cytoplasm Eventually these cholesterol-loaded cells degenerate and disappear, and they are replaced by condensed stroma The hepatic lesions in animals fed cholesterol always assume their most advanced form in centrolobular positions

These cytological features of abnormal cholesterol deposits in animals' livers are consistently observed in xanthomas in man Such lesions, most frequently encountered in individuals with abnormally elevated levels of serum cholesterol, contain macrophages with centrally placed nuclei surrounded by many cholesterol crystals and needles Many xanthomas are uniquely characterized by the presence of specialized giant Touton cells, which have peripherally placed nuclei immediately beneath their limiting membranes These cells are almost pathognomonic of the lesions I have never encountered them, however, in tissues of animals fed cholesterol Fibrous tissue is the other prominent component of xanthomas, indicating that the local overloading of the tissues with cholesterol has induced cell damage with replacement by granulation tissue and scarring Ceroid or iron deposits are not demonstrable (Ceroid is a sudanophilic, amber pigment that is insoluble in fat-solvents and extractable from tissues by hot caustic alkali It was first observed in fibrous trabeculae of cirrhotic rats fed hypolipotropic diets[4])

The foregoing examples of tissue responses in man and animals in which either local or systemic alterations of lipid metabolism exist demonstrate a number of common features In every instance, abnormal deposition of either triglycerides or cholesterol, if sufficiently great, may produce irreversible forms of cell damage The actual mechanism by which necrosis develops appears to differ in various organs and sites Once cell death supervenes, there is eventual replacement by granulation tissue and scarring In the examples cited, the deposition of lipid has been regarded as the initiating event, but it must be reiterated that necrosis of cells by any agent may be accompanied by secondary accumulation of stainable fat, including cholesterol The end-result of either sequence may be identical—scarred tissue containing stainable lipids in varying quantities, so that the pathogenesis of the final lesion cannot be determined by its histological characteristics

Atheroma in Man and Animals

The difficulty of determining the significance of the histological characteristics of the lesion points up many of our difficulties in attempting to elucidate the etiology and pathogenesis of atheroma in man The histological characters of the lesions are well known, but the emphasis to be placed on their interpretation continues to be the subject of extensive discussion Holman[5] and others have demonstrated intimal and subintimal deposits of triglyceride and cholesterol, much within macrophages or so-called foam cells in very small atheromatous lesions in man Paterson[6] has detected stainable iron in these small lesions, and one of us[7] has reported the presence of traces of ceroid pigment in small atheromas There is considerable agreement between all observers, however, that, whatever its etiology, the lesion is initially one of intimal and subintimal tissues Medial involvement and changes in elastic and muscle tissue are undoubtedly secondary

Atheroma in man is characterized by a change in the inner wall of the artery accompanied by intimal thickening, presence of triglyceride, cholesterol, iron, and ceroid deposits, fibroblasts, macrophages, and capillaries The latter three elements are covered by the term granulation tissue In old lesions, granulation tissue has progressed to frank fibrosis Deposition of masses of calcium salts and ulceration are only observed as secondary and late complications, and in these instances medial necrosis and fibrosis may be seen Because of the emphasis currently placed on the lipid components of atheroma, their nature will be considered further

It can be demonstrated histochemically, even in early lesions, that cholesterol and cholesterol esters are prominent from the start Triglyceride and ceroid, however, are almost equally abundant These features can be illustrated by comparing photomicrographs of the same region of the atheromatous arterial wall illuminated with and without polarized light, and before and after extraction with alcohol and xylol These observations suggest that all three types of lipid may be present in nearly equal proportions Many investigators, however, feel that cholesterol is the first lipid to be deposited in any appreciable amount and that the others follow Further evidence to support this view is needed before it can be universally accepted in the case of man

Recently, Tuna[8] and his associates at the University of Minnesota have subjected the lipids in circulating plasma obtained from normal subjects to a careful and exacting biochemical scrutiny Parallel observations were made on lipids extracted from human atheromatous plaques With their very advanced techniques, they were able to identify many of the fatty acids of the triglycerides and cholesterol esters obtained from both sources and to arrive at quantitative comparisons They failed to demonstrate any significant difference quantitatively or qualitatively between the composition of the fatty acid fractions in normal plasma and atheromatous plaques No differences in relative solubilities of comparable fractions of either samples existed Their results together with our histochemical studies, therefore, indicate to us that ceroid deposits are the only lipids, albeit pathological, in atheromatous plaques that differ significantly from those of serum The striking feature of ceroid, which can be roughly compared to an oil paint, is its insoluble nature Once formed it may contribute significantly to the development of irreversible tissue responses in the arterial wall We have already demonstrated the sclerotic action of ceroid in canine aortas by injecting the substance, which was artificially prepared from canine red blood cells and unsaturated fat incubated in vitro at body temperature for several days, into the vessel wall at laparotomy When the animals were killed two to four weeks later, fibrosis was apparent around the injected ceroid Fibrosis was not found in the aortas of control animals similarly injected with triglyceride We are currently investigating further this approach to the pathogenesis of atheroma

Cholesterol has been used successfully to produce in experimental animals arterial lesions that have many resemblances to atheroma in man Feeding large amounts of cholesterol to rabbits will produce vascular changes The pathogenesis of these lesions has been studied intensively, the late Dr G Lyman Duff and colleagues,[9] employing ingenious techniques, have elucidated their development in a particularly helpful fashion They discovered that both triglyceride and cholesterol appear within the aortic endothelium and beneath it within a few days after the initiation of the experimental regimen. Later, the intima is heaped up by massive deposits of cholesterol and triglyceride, contained chiefly by foam cells beneath the endothelial lining. Unlike aortic atheroma in man, these lesions are more numerous in the arch and thoracic portions of the aorta rather than in the abdominal segment. This difference in distribution also holds for cholesterol-induced lesions in rats fed thiouracil, as in Wissler and associates' experiments[10] and those reported by Stare and co-workers,[11] who used somewhat similar dietary regimens. The aortic lesions induced in rats deficient in choline, already mentioned, are also more numerous in the thoracic than in the abdominal regions of the aorta.

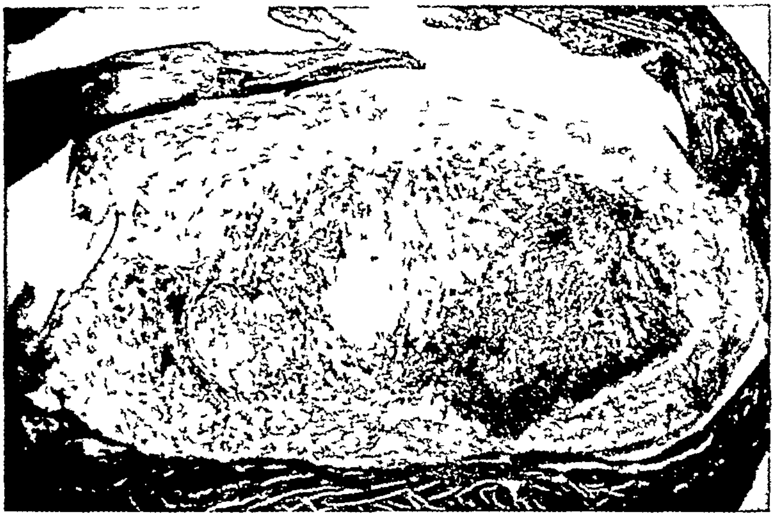

Fig. 1.—Section from apex of rat's heart with myocardial infarct and large mural thrombus. Fat appears black. Oil red O stain on frozen section.

With the exception of the type of vascular damage induced by a deficiency of choline, cholesterol alone or in other combinations has been used to produce atheromatous lesions in almost all experiments reported to date. Stare and Mann[12] employed cholesterol in combination with diets deficient in methionine to produce coronary and aortic lipidosis with intimal proliferation in Cebus monkeys. Thiouracil, as already mentioned, is apparently a necessary adjunct in the case of the rat and dog. Chickens and rabbits, the former extensively studied by Katz and associates,[13] appear to be the only species in which atheromatous changes can be produced readily at will by feeding cholesterol alone.

The late Dr. Reinhart[14] was able to produce aortic lesions in monkeys closely resembling human atheroma by feeding the animals diets deficient in pyridoxine. These experiments have recently been confirmed in both monkeys and dogs deficient in pyridoxine.[15] Lipid is apparently not deposited in these lesions under the experimental conditions employed. In addition to these and other differences between atheroma thus far produced in experimental animals and that in man, ceroid deposits have not been found in the former. We have searched vascular lesions produced in rats and rabbits by a variety of techniques and have failed to demonstrate the presence of ceroid. One of the most important differences between the production of atheroma in experimental animals and that found in man, is the absence, aside from a few scattered instances, of the regular production of important complications such as myocardial infarction in any series reported.

Experiments initiated by Duguid,[16] Harrison,[17] and others and extended by one of us and co-workers[18] have conclusively demonstrated that injection of thrombi into rabbits' ear veins will produce morphologic counterparts of atheroma in their lungs that are the end-results of organization of the thromboemboli trapped in small pulmonic arteries. Meals with high fat content were fed to clot-injected rabbits by means of stomach tubes. A standard dose of injected clot produced more lesions in the animals fed fat than in control animals similarly injected but fed water or syrup instead of fat. Of the various fats tested, butter was most efficacious in this regard, whereas corn oil had no effect. A sequence of morphologic changes can be traced in man that indicates the probable transformation of organized thromboemboli in pulmonic arteries to lesions that all would term pulmonic atheroma.

The real reason, of course, for such vital interest in atheroma is that myocardial infarction is the frequent and fatal complication of coronary atheromata. Evidence accruing from the epidemiologic studies of Holman and McGill[19] and one of us and others[20] has led some of us to suspect that the factors that

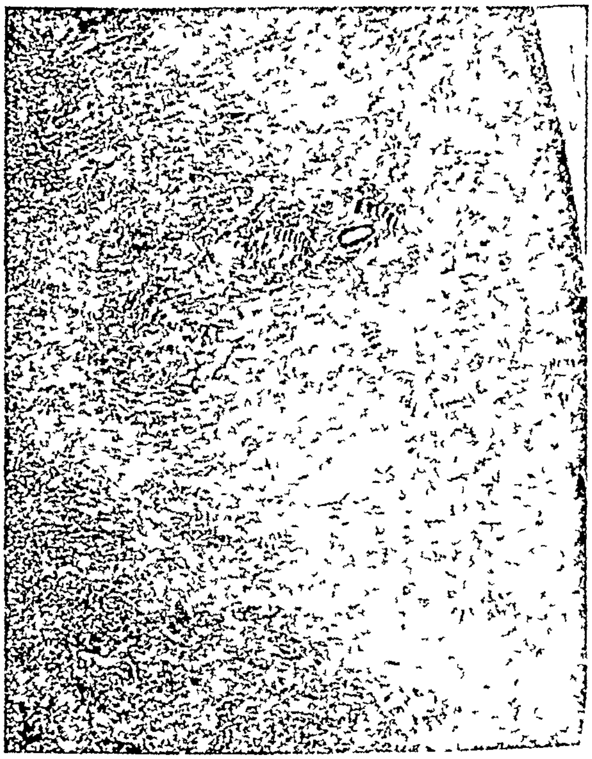

Fig. 2.—Large renal infarct in rat's kidney. Hematoxylin and eosin stain on paraffin section.

initiate atheroma may not necessarily be identical with those responsible for its fatal complications Aside from a few reports of the sporadic occurrence of isolated cases of myocardial infarction in experimental animals, there are to date no published methods for producing at will cardiac infarction in intact animals On several occasions,[21] we have previously emphasized the need for such an experimental model so that any factors responsible for myocardial infarction, as distinct from atherogenic mechanisms, can be studied adequately Stimulated by a recent report from Dr Stare's laboratory of one case of myocardial infarction in a rat in one of his experiments and by some encouraging preliminary experiments of our own, we have been attempting for the past year to produce myocardial infarction in rats by purely dietary measures We believe that we have met with a sufficient measure of success to warrant reporting the progress of these experiments at the present time Wilgram[22] has recently reported the development of 'numerous areas of old and recent cardiac infarcts' in the hearts of two rats fed diets containing cholesterol, cholic acid, propylthiouracil, and large doses of Viosterol His results accord with those reported above

Dietary Induction of Myocardial Infarction in Rats

Male albino rats of the Wistar strain (initial weights of 110 Gm) were fed diets containing high levels of various types of fat (40% butter, lard, or hydrogenated fat) supplemented with cholesterol, cholic acid, and thiouracil in order to elevate the animals' serum cholesterol levels (Details of the experimental procedure will be reported elsewhere in a paper now in preparation for publication) The protein content of the diets varied in the different groups from 12 to 20%, and a supplement of 1% choline chloride was added in some instances Our results have not progressed sufficiently far for us to evaluate the relative importance of these various factors in the production of myocardial infarction In the animals fed diets containing high amounts of saturated fat (butter or lard) for 14 weeks, we have encountered extensive myocardial infarction with formation of mural thrombi (fig 1) in incidences ranging from one animal in nine to as high as five of nine (the latter on a diet containing 12% protein and 40% lard) Renal infarcts (fig 2) were also encountered in many of these rats The cardiac infarcts were most frequently observed at the apices and margins of the left ventricles (fig 3) Necrosis is most extensive in the inner portions of the wall, sparing to some extent the subepicardial regions The thrombi within the left ventricle were attached to the infarcted apex and in some instances filled the left ventricular cavity nearly completely Stainable fat consisting of both cholesterol and triglyceride is present in the infarcted muscle but is absent in the adjacent nonnecrotic regions (fig 4) Ceroid deposits have been demonstrated in considerable abundance within the thrombi, where more soluble lipids can also be found Thrombi were demonstrated in coronary arteries supplying the infarcted regions of myocardium (serial sections)

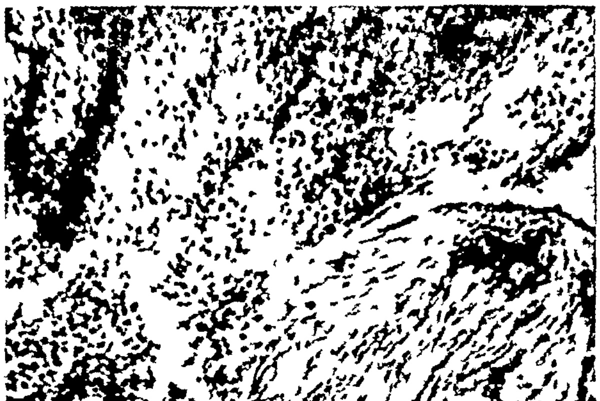

Fig 3 —Infarcted myocardium and mural thrombus in section of rat's heart Oil red O stain on frozen section

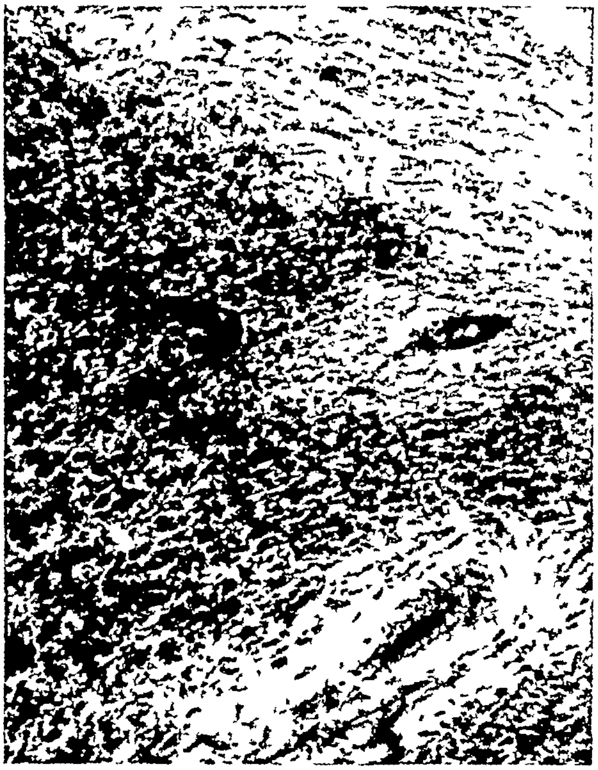

Fig 4 —Portion of infarcted myocardium from rat showing large quantities of fat in dead muscle and none in adjacent living muscle Oil red O stain on frozen section

We believe that these animals developed myocardial infarcts because factors that raised the levels of blood cholesterol and a high supplement of saturated fat

(40% butter or lard) were combined in the same dietary regimen In order to evaluate properly the relative importance of these factors, however, more experiments are needed, some of these are already underway in our laboratory Now that we have produced what seems to be a significant incidence of the lesion, it should not be difficult to test the effects of various dietary situations along with other factors such as age, sex, and diabetes on the incidence of myocardial infarction in rats under these conditions We hope by this approach to elucidate some of the interrelations between known atherogenic mechanisms and those actually responsible for the fatal complications of atheroma Should we achieve our objective, it might prove possible to learn how to prevent the complications of atheroma, if not to reverse the actual lesions, thereby perhaps permitting those of us with narrow coronary arteries to live with them

Summary

A study of pathological changes related to disturbances of fat and cholesterol metabolism as manifested in a variety of sites such as in the liver, kidney, heart, skin, and tendon in both animals and man indicates that the lesions in all these situations have a number of features in common The cells laden with lipids eventually degenerate and disintegrate, to be replaced by granulation tissue and eventual scar formation Cytological details vary with the type of lipid (triglyceride or cholesterol), and considerable differences are encountered in the pathological pictures at different stages of these lesions In various sites, the mechanisms differ by which the local overload of the tissues with lipid results in cellular death Both triglyceride and cholesterol deposits not only may initiate tissue necrosis but also may be the result of the latter Eventually, the pathological changes in both instances, whether the lipid deposits are primary or merely a secondary sequence, may be so comparable that the pathogenesis in any instance is impossible to determine from the end-result

At least three types of lipid are prominent in even small lesions of human atheroma Cholesterol deposits are accompanied by almost equally abundant amounts of triglyceride and ceroid in the regions of the affected intima As the lesions progress, granulation tissue and scarring develop beneath the intima, and later gross calcification, ulceration, and medial degeneration may supervene Atheroma is primarily a disease of the inner layers of the arteries, and this fact is at present generally accepted Evidence to date indicates that ceroid is the only lipid constituent of the arterial plaques that differs in any significant degree from lipid circulating in the plasma Ceroid, probably virtually absent from the circulating blood, is characterized most significantly by its high degree of relative insolubility in either aqueous or organic solvents Many types of experimental atheromas produced in animals do not contain ceroid deposits of the type found regularly in typical lesions in man

Up to the time of writing, it has not been possible to determine by animal experiments the relative importance of various factors in initiating atheroma as compared with their possible roles in the development of its fatal and important complications, notably myocardial infarction To carry out such studies, it is necessary to develop an experimental model in which myocardial infarction can be produced at will in a significant percentage of the animals We have reported experiments in which we believe this objective may have been achieved, at least in part, by the production of myocardial infarction in rats fed diets high in cholesterol and saturated fats for 14 weeks Evaluation of the relative importance of some of the dietary procedures that were employed awaits the results of further experiments

Atheroma may be the result of a primary disturbance of fat and cholesterol metabolism in man, but morphologic evidence has not established whether the lipid deposits are primary initiating events or secondary sequelae in the pathogenesis of the lesions It remains to be established whether the lipid disorder, even if primary, is a local disturbance in the arterial wall or a focal manifestation of a systemic alteration of fat metabolism or transport Until specific answers to these and other questions raised in the foregoing are obtained, it is likely that myocardial infarction will continue to be the most important single cause of death in the American population

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DIETARY CONTROL OF SERUM LIPIDS IN RELATION TO ATHEROSCLEROSIS

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There is a serious lack of direct evidence that atherosclerosis is due to alterations in fat metabolism Yet, the hypothesis is made attractive by various lines of reasoning—pathological, clinical, and epidemiologic In its simplest form (fig 1), the postulate states that some peculiarity of dietary fat leads to abnormalities in serum lipids that cause an accumulation of fat in blood vessel walls Over many years the narrowing of certain vital vessels produces no recognizable disability until complete occlusion, often abetted by thrombosis, results in a sudden vascular accident This occurrence is usually late in a long sequence of events Many patients show massive degrees of atheromatosis at autopsy without having had clinical signs of coronary vessel involvement, conversely, some patients die of myocardial infarction secondary to a small localized coronary occlusion but show little generalized atheromatosis Obviously many factors must be important at various stages in the genesis of this disease, such as local anatomic peculiarities, hemodynamic factors, clotting, genetic traits, and endocrine relationships However, the line of reasoning to be considered here invokes a disorder of lipid metabolism

Evaluation of the Hypothesis

Historically, the theory that there is a relationship between diet and myocardial infarction had its beginning when it was demonstrated that cholesterol is present in atheromas and when Anitschkow produced atheromatosis in rabbits by feeding cholesterol In these animals it was clear that a dietary factor caused hypercholesteremia and in turn atheromatosis However, the importance to be attached to these observations must be weighed against other considerations

1 Rabbits are herbivorous and may not have effective mechanisms for metabolizing an animal sterol with the same dispatch as omnivorous animals

2 It is difficult to produce the same sequence of events in rats unless large amounts of bile acids are also fed, or in dogs unless the thyroid is simultaneously blocked, or in monkeys unless cholesterol, bile acids, and an incomplete protein are given together

3 The atheromas produced by feeding cholesterol to animals show important differences in character and in distribution from human lesions Moreover, there is a generalized cholesterosis involving the liver, spleen, and bone marrow in the animal that is fed cholesterol but not in the atheromatous man

4 Coronary occlusions with myocardial infarction have rarely been reported in experimental animals with severe atheromatosis, until the announcement by Drs Hartroft and Thomas in this symposium Their production of myocardial infarction in rats represents a very important advance Nevertheless, these animals were challenged with every weapon at the experimenter's disposal deficiency of protein and choline, administration of cholesterol and bile acids, medical ablation of the thyroid, and a diet high in saturated fats This exciting development serves to focus our attention on the puzzling fact that, whereas atheromatosis in animals is easily produced, myocardial infarction can be simulated only with great difficulty and by means that have no counterpart in human nutrition and metabolism Although observations made in the laboratory in the last 40 years have had an exceedingly stimulating effect on research in this field, present opinion seriously qualifies the direct relationship between dietary cholesterol and atherogenesis in man

The second major basis for the hypothesis involves the high incidence of arteriosclerotic disease in patients who manifest hypercholesteremia It is frequently claimed that patients with myxedema and nephrosis have severe atheromatosis at autopsy, however, these entities are rarely complicated by myocardial infarction Because diabetes and familial hypercholesteremia are both genetically determined, it can be questioned whether atheromatosis that develops in persons with

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From the Rockefeller Institute, New York Dr Tsaltas is now with the New York University College of Medicine Dr Blomstrand is now with the University of Lund, Lund, Sweden these conditions is caused by abnormal lipid metabolism as the primary defect Is it not worth considering that in these groups hypercholesteremia and arteriosclerosis may both be genetically determined and that the two manifestations of disease need not be causally related? Wilkinson studied many members of a familial group with hypercholesteremia and found no greater incidence of coronary disease in the members who had hypercholesteremia than in those whose serum cholesterol values were normal[1]

The third major line of evidence favoring the sequence shown in figure 1 rests on data gathered in various parts of the world by Keys and his co-workers[2] Their data illustrate a relationship between total intake of dietary fat, serum cholesterol levels, and incidence of arteriosclerotic heart disease Exercise, economic status, stress of living, and obesity are stated to play no primary role in this process A number of criticisms of the validity of these data have been summarized recently by Page and associates[3]

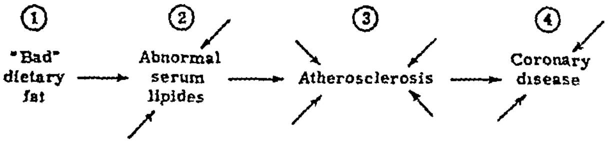

Fig 1 —Postulated relationship between diet and myocardial infarction Additional arrows signify other factors

To us, the most serious weakness of this type of evidence lies in our inability at the present time to quantitate the extent of the atheromatous process during life (fig 1, part 3) Not only does this weak link prevent an evaluation of the extent of the disease process in relation to abnormal serum lipids and antecedent dietary malpractice, but it also prevents the direct estimation of the effectiveness of any regimen that might ameliorate the process It is regrettable that the good and bad features of any environmental factor cannot be evaluated except in terms of the complications of the atherosclerotic process (fig 1, part 4)

It is entirely possible that the scheme shown in figure 1 will be proved correct when further facts have been gathered through new approaches to the problem However, when unproved hypotheses are enthusiastically proclaimed as facts, it is timely to reflect on the possibility that other explanations can be given for the phenomena observed Let us postulate that another factor, X, is responsible for atherogenesis Under certain modifying circumstances X also causes abnormal serum lipid states X might be pyridoxine deficiency, this vitamin acts as a coenzyme in fatty acid metabolism[4] It might be a trace metal affecting cholesterol synthesis,[5] or a bulk-former in the diet, which might influence intestinal micro-organisms and in turn the excretion of fats and sterols X may be a factor as yet unnamed The importance of recognizing this possibility lies in the fact that experiments, clinical or epidemiologic, cannot be planned with adequate control of X if X is unknown

These introductory remarks have been made in considerable detail in order to underline the uncertainties that the clinician faces when he debates whether to prescribe a change in dietary regimen for his patients as a preventive measure against arteriosclerosis and coronary disease As a scientist, he will preserve some degree of skepticism when claims are made for the efficacy of certain foods and the evils of others, knowing how difficult is the hurdle from 2 to 4 in figure 1, not to mention that from 1 to 4 However, in patients with coronary disease he may be justified in applying an unproved hypothesis, if it can be shown that certain changes in dietary habits produce definite alterations in the concentrations of serum lipids

Alterations of Serum Lipids in Man by Changes in Diet

In 1952 Kinsell and co-workers[6] published clinical experiments indicating that the replacement of animal fats with vegetable fats resulted in dramatic decreases in concentrations of cholesterol and phospholipids in the serum During the same year, Groen and co workers[7] showed that the ingestion of a vegetarian diet produced a significant depression of serum cholesterol levels Then, in 1954, Hardinge and Stare[8] reported a study of vegetarians in which it was shown that serum cholesterol levels were lower in those who ate no dairy products than in others who ate eggs and milk as well as vegetables

Kinsell's important reports were confirmed by our group[9] in 1954 in experiments on six obese but otherwise normal patients Comparable results were obtained in a seventh patient, 49-year-old male with hypercholesteremia who had skin and tendon xanthomatosis, whom we studied for 22 weeks (fig 2) His weight was held constant by administration of adequate calories His food intake was derived largely from natural mixed cooked foods but in part from a

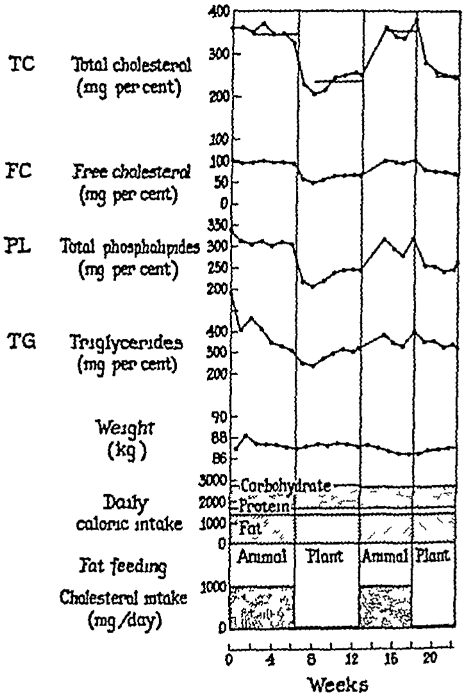

Fig 2 —Twenty-two-week study of serum lipids of 49 year old male with hypercholesteremia who had skin and tendon xanthomatosis and history of cerebral vascular accident and coronary occlusion Isocaloric exchange of plant and animal fats in the diet

liquid homogenate of fat and protein, as described previously[9] The metabolic mixture of his food intake represented that of a well-fed American 12% protein, 50% fat, and 38% carbohydrate In four study periods, his dietary fat intake alternated isocalorically between animal and vegetable fats His cholesterol and phospholipid levels decreased in the two periods in which vegetable fat was ingested and stabilized at the same higher levels in the two periods during which he was given animal fats

Effects of Individual Fats

Since it has become clear that differences can be produced in human serum lipid levels by substitution of one dietary fat mixture for another, further understanding of the process has been sought by study of the effects in man of ingestion of individual fats of widely varying composition Body weight must be held constant in such experiments because lipid levels rise or fall in the serum when weight is gained or lost respectively Other variables that might influence serum lipid levels, such as psychic unrest, metabolic fluctuations, exercise, infection, and endocrine therapy also must be minimized

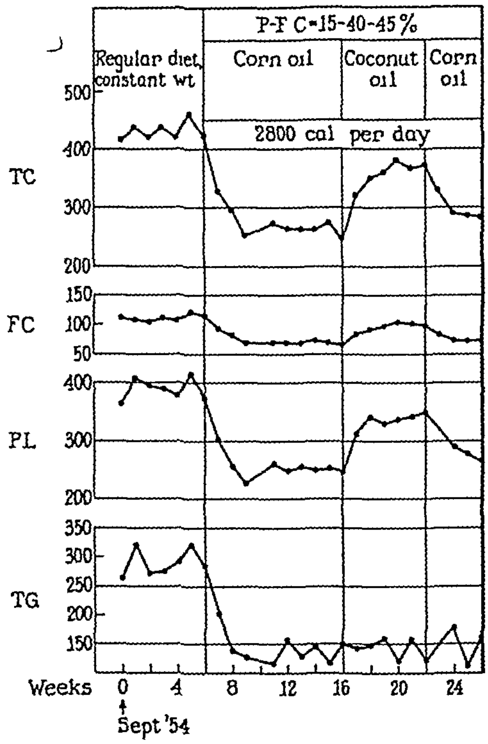

Fig 3 —Twenty-six-week study of serum lipids in 27-year-old male with hypercholesteremia without apparent vascular disease or xanthomatosis For lipid abbreviations on vertical axis, see fig 2 P-F-C=protein, fat, carbohydrate intakes, as percentage of total calories Note 3 week transition periods after each dietary exchange before levels became steady

An experimental technique was developed[10] for the preparation, storage, and dispensing of homogenized mixtures of milk protein, carbohydrates, and single test fats It has the advantage of rigid control of all intakes and eliminates the undefined effects of cooking These mixtures were administered by mouth as the sole source of nutrients Daily supplements of iodized salt, iron, and a multivitamin mixture were given Details of this regimen have been fully described[10] Patients were carefully selected for minimum study periods of 4 months They were purposely not a homogeneous group, but included males and females from 13 to 72 years of age Some were normocholesteremic and others hypercholesteremic They had no manifest infectious or endocrine disease, and all were ambulatory Many of the patients had coronary insufficiency and a distant history of myocardial infarction, but none was in cardiac failure A few patients with hypercholesteremia or hyperlipemia had no evidence of vascular disease Forty-one of the 43 patients were hospitalized on a metabolic ward for their 4-month to 36-month studies They were maintained on oral formula feeding throughout these periods without recognized ill-effect At six-week intervals or longer, as circumstances demanded, exchanges of formulas were made in which one fat was isocalorically substituted for another In this manner more than 25 fats have been tested The results of these experiments are described in detail elsewhere[11]

These experiments have shown that some dietary fats produce higher serum cholesterol and phospholipid levels than others but that the triglycerides in the serum are relatively constant and do not vary in parallel with the other lipid groups The highest levels of cholesterol are found when butter and coconut oil are fed as sole dietary fats, intermediate levels are produced by palm oil, lard, cocoa butter, and olive oil, the lowest levels follow the feeding of peanut, cottonseed, corn, and safflower oils A linear correlation was found between the degree of saturation of the dietary fat and the levels of cholesterol and phospholipids in the serum Statistical analysis indicated that results are best correlated with the mean degree of saturation of the fat (as measured by its iodine value) There was no better correlation with its content of

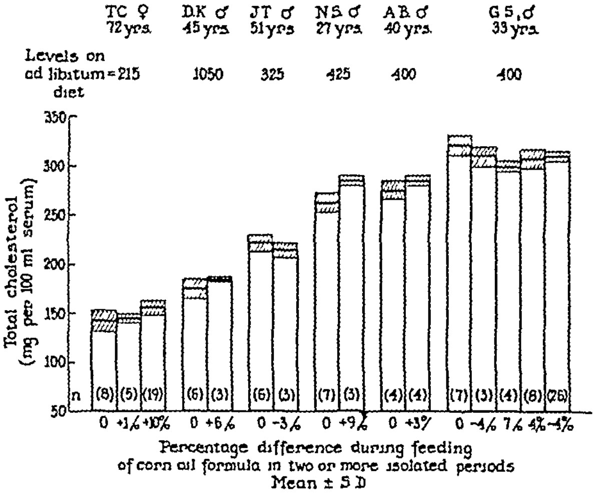

Fig 4 —Reproducibility of serum cholesterol levels in 6 patients retested on basic corn oil formula (P-F-C=15-40-45% of calories), with other regimens in intervening periods Bars show mean levels during steady states, hatched areas=one standard deviation, n=number of weekly data during each steady state Percentage differences along baseline calculated with reference to mean levels of first feeding periods

any specific fatty acid, such as linoleic acid Tests with fats that had been treated to remove a large part of the minor components (the nonsaponifiable materials) showed no loss of effectiveness in reducing cholesterol levels On the other hand, hydrogenation of the highly unsaturated fats vitiated the effect of these fats in lowering the cholesterol level These data are consistent with but do not prove the hypothesis that the ingestion of unsaturated fats leads to lowered levels of cholesterol and phospholipids in the serum A mechanism for this effect has been suggested[12]

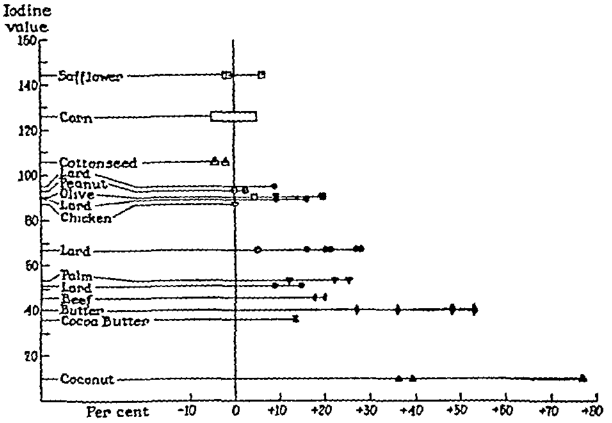

Fig 5 —Relationship between iodine values of dietary fats and serum cholesterol levels expressed as percentage differences from baselines established during ingestion of corn oil iodine values of fats listed along vertical axis Open bar at iodine value 126=estimated reproducibility of corn oil baseline (fig 4) Open symbols represent results not significantly different from baseline, solid symbols different at level of $p<0.01$ hatched symbols different at level of $p<0.05$

Experiments that substantiate these statements are shown in figures 3 to 7 Figure 3 demonstrates that a saturated fat, coconut oil, causes higher lipid levels than an unsaturated oil, corn oil When corn oil formula is fed repeatedly to the same patient, other feeding periods intervening, the same cholesterol levels are achieved within ± 5% (fig 4) As all patients do not respond to corn oil to the same degree, the serum lipid levels achieved during ingestion of the corn oil formula can be used as control values for each patient and the percentage differences between control levels and those produced by other dietary fats can be calculated When these percentage differences are related to the iodine values of the various fats tested, a linear relationship is obtained (fig 5)

The percentage difference in cholesterol levels between corn oil and other test fats can be related to the fatty acid composition of the fats by the formula $P=0.14\ L-0.49\ I+47$, where P=percentage difference, L=contribution of linoleic acid to the total iodine value of the fat (or linoleic acid content×1.8), and I=total iodine value of the fat If the L expression is omitted entirely, the formula becomes $P=-0.37\ I+44$, and the fit of the data to this simplified calculation is just as good as with the longer formula (F test) Since P can be so well equated with iodine value, the calculation shows that the effect of dietary fats on serum cholesterol levels is perhaps more a function of mean unsaturation of the fat rather than of the content of any specific acid, such as linoleic acid Even oleic acid, which is not an essential acid, thus makes a sizable contribution This is verified by the fact that olive oil, rich in oleic but poor in linoleic acid, produces almost as great depression of serum cholesterol as does peanut oil, which is rich in linoleic acid The statistics and their interpretation are discussed more fully elsewhere[13]

It is obvious from the data presented in figure 4 that no formula can be expected to predict serum cholesterol levels of all patients from knowledge of the composition of their dietary fat, except possibly when applied to a homogeneous group of normo cholesteremic subjects On the other hand, our formulas show that in any patient the response to two dietary fats can be related to each other in terms of their two fatty acid compositions Although these calculations have no practical value for the clinician, they offer some insight into the mechanisms involved by demonstrating that the phenomena we are studying are likely due to differences in fatty acid compositions of dietary fats

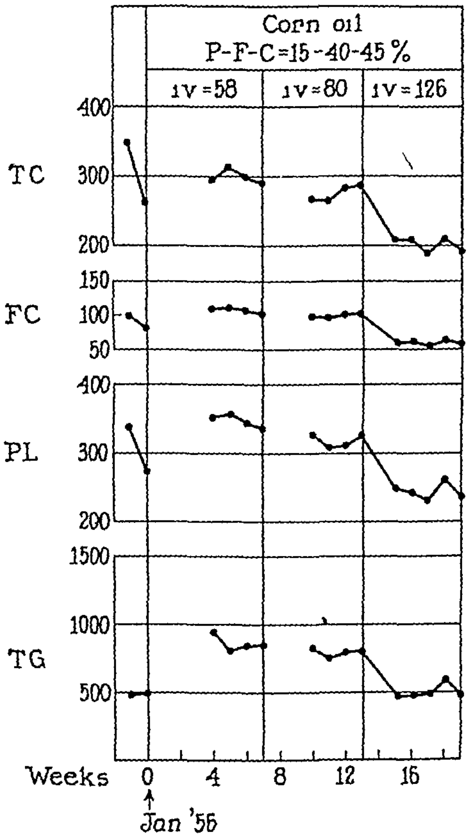

Fig 6 —Effect of ingestion of corn oil hydrogenated to iodine values of 58 and 80 compared to unhydrogenated oil Levels of TC and PL significantly different ($p<0.01$) in all 3 test periods Fifty-year-old male with history of myocardial infarction

The ingestion of formulas containing corn oils saturated by hydrogenation to iodine values of 80 and 58 produced successively higher levels of cholesterol and phospholipids in the serum (fig 6), and the removal of 80% of the nonsaponifiable materials such as sitosterols, carotenes, and tocopherols, from corn oil failed to abolish its cholesterol-lowering properties (fig 7)

These experiments do not prove conclusively that saturated fats elevate and unsaturated fats depress serum cholesterol and phospholipid levels, although the data are entirely consistent with this hypothesis The experiments so far accomplished have utilized processed natural fats, all containing significant amounts of nonsaponifiable material that in trace amounts might account for the effects observed Long-term tests must be carried out with highly purified synthetic glycerides in order to substantiate the conclusion, now presumptive, that the described effects on serum lipids are caused by the fatty acid composition of ingested fats

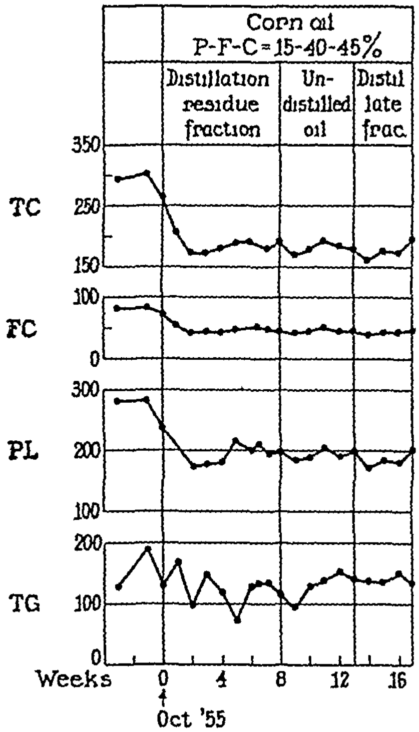

Fig 7 —Lack of dietary effect on serum lipids of 6 fold difference in nonsaponifiables of corn oil Molecular distillation enriches nonsaponifiables in distillate fraction, residue fraction is poor in this material Sixty-seven-year old male with history of coronary insufficiency

Effects of Variations in Fat Intake

In all experiments with formula feeding summarized previously, dietary fat comprised 40% of the total calories If the proportion of fat calories were less than 40%, would levels of serum lipids be decreased? Figure 8 demonstrates that, when corn oil made up only 10% of total calories, there was a sudden marked increase in serum triglyceride levels as well as a small rise in phospholipid and cholesterol levels When the corn oil intake was increased to 70% of total calories, there was a prompt fall in triglyceride and other lipid levels Thus the lowest serum lipid levels occurred on the highest intake of corn oil

Similar changes have been produced in four other patients In the oldest of these, a 72-year-old female with coronary insufficiency, there was a four-fold increase in the serum triglyceride level when a formula containing 70% of calories from corn oil was replaced by a diet free of fat [13] In addition, there was marked lipemia on the fat-free diet and a striking increase in $S_f >$ 20 lipoproteins It remains to be determined whether this response is a function of age, less dramatic effects on triglycerides were produced by these dietary alterations in a 33-year-old hypercholesteremic male Hatch and associates [14] also noted a rise in the triglyceride level and abnormal ultracentrifugal patterns in patients fed rice diets low in fat

Such experiments demonstrate that the various serum lipid levels need not vary in a parallel manner and that a total cholesterol value may give little indication of the other lipid levels Since in some patients a diet low in fat produces high levels of serum triglycerides, we are tempted to ask whether the lower-density lipoproteins are less 'atherogenic than the higher-density lipoproteins rich in cholesterol and phospholipids We know of no solid evidence on this point, and until the question is further explored we question the wisdom of prescribing low-fat diets for the general population

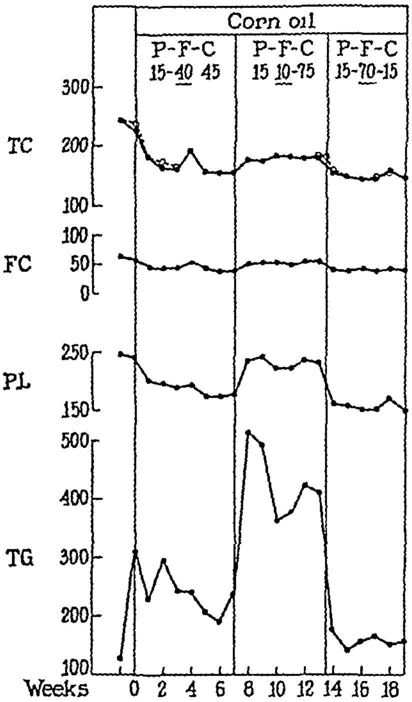

Fig 8 —Effect on serum lipids of varying the proportions of fat and carbohydrate calories reciprocally, keeping total calories, protein, and body weight constant Major changes produced in serum triglycerides, smaller effects on phospholipids, least striking differences in cholesterol Lowest serum lipid levels on highest intake of corn oil Fifty-three-year-old male with history of coronary insufficiency

Effects of Vegetarian Diets

Figure 2 shows the effects on serum lipid levels of diets that consisted in part of liquid homogenates It was desired to compare more strictly the effects of ingestion of animal and vegetable fats, isocalorically exchanged but derived entirely from natural solid foods without supplementation by liquid homogenates. Figure 9 presents an experiment in a 60-year-old male with coronary insufficiency, who was fed a metabolic mixture in which 15% of the calories were derived from protein, 40% from fat, and 45% from carbohydrate. In the first period his entire food intake consisted of the basic corn oil formula already discussed. In the second and third periods his food was derived entirely from natural mixed solids. All fat was of vegetable origin in the second period and of animal origin in the third period. It is clear that levels of cholesterol and phospholipids were lower in the vegetable than in the animal fat period.

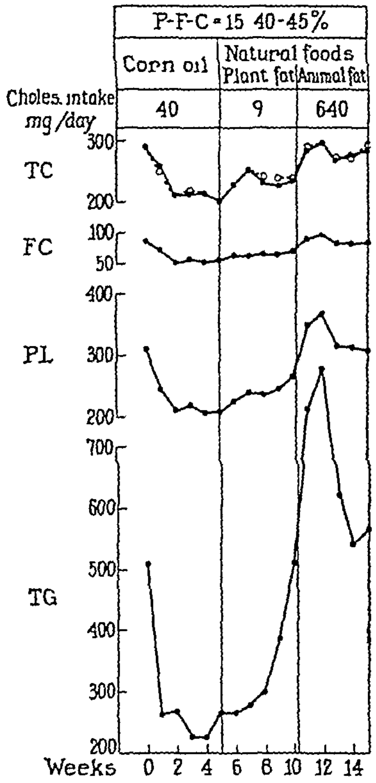

Fig 9.—Effects on serum lipids of corn oil formula compared to two diets of natural mixed solids, with all fat of vegetable origin in second period all of animal origin in third period. Mixture of fat, protein, and carbohydrate held constant in all feedings. Note delayed triglyceride response in second period. Sixty one-year-old male with history of myocardial infarction.

In view of this experiment and those previously cited, it seemed advisable to evaluate the effects of total vegetarianism on serum lipids in a study of outpatients. All meats, poultry, fish, and dairy products were omitted, except for washed cottage cheese and skim milk. Oleomargarine (3 to 4 pats per day) was given to replace butter. The table shows the results of this dietary management of eight patients in whom lipid patterns also were determined when ad libitum diets were ingested. In all cases the levels were lower on the vegetarian regimen. When their nourishment was derived from liquid homogenates containing corn oil at 40% of calories, their serum cholesterol levels were still lower.

Practical Measures for Control of Serum Lipids

Experience to date has shown that two regimens are effective in lowering serum lipid levels of our outpatients. The first is total vegetarianism, in which all dairy products are omitted except for skim milk, washed cottage cheese, skim milk cheeses and egg whites. This regimen has been no less effective, in terms of serum lipids, when supplemented with fish and shellfish once or twice daily. Soybean recipes, olives, nuts, and avocados can be used to advantage. Oriental and near Eastern dishes have proved to be appealing and offer variety to a diet that relies heavily on fruits, vegetables, starchy foods, and nuts. This first regimen is difficult for patients who eat many meals in restaurants.

The second regimen consists of a very low fat diet (less than 25 Gm. per day) supplemented by an ounce or more of corn oil at least three times daily. Our goal has been to achieve maximum dietary effects on serum lipids, and very high intakes of the unsaturated fats have been required. The basic diet offers modest portions of lean meats, chicken, and fish each day. Many recipe books that help to make a low-fat regimen acceptable have been published.

Indications for Dietary Management

It is clear that serum lipid levels can be influenced by dietary manipulations. The findings presented in this paper are entirely consistent with the observations made by Kinsell and Michaels,[15] Bronte-Stewart and associates,[16] and Beveridge and associates.[17] Although considerable progress is being made in defining those elements in the diet that produce such changes, much remains to be learned about the effects of many nutritional ingredients. Indeed, the mechanism of the changes caused by dietary fats has only recently been studied.[18] The data in a single patient have indicated that excretion of cholesterol is affected and that serum

Clinical Data and Total Serum Cholesterol Levels of Male Patients Subjected to a Vegetarian Diet

			Total Serum Cholesterol Mg./100 Ml. Serum		
Case No.	Age Yr.	Clinical Diagnosis*	Ad Libitum Diet (Outpatient)†	Corn Oil Formula (Inpatient)	Vegetarian Diet No Formula (Outpatient)
1	45	Hc. Xs.	1 089±59 (4)	175±10 (6)	277±18 (5)
2	50	Hc. Xt. Xs. Ashd. MI	413±29 (6)	192±10 (4)	290±19 (7)
3	40	Hc. Xt. Xs.	400±28 (9)	274± 9 (4)	313±16 (13)
4	33	Hc.	363±27 (7)	195± 7 (8)	229±25 (18)
5	51	Hc. Ashd. MI	358 331 (2)	185±13 (4)	218± 7 (4)
6	61	Hc. Ashd. MI	298 294 (2)	209± 6 (4)	259±14 (24)
7	52	Ashd. MI	267 224 (2)	156± 8 (4)	221±10 (5)
8	53	Ashd.	237± 9 (8)	159± 6 ‡ (5)	176± 2 (3)

* Hc. = hypercholesteremia. Xs. = xanthomatosis of skin (tuberous or planar xanthelasma). Xt. = xanthomatosis of tendons. Ashd. = arteriosclerotic heart disease. MI = myocardial infarction.

† Values in parentheses in last 3 columns = number of determinations. Mean cholesterol levels are shown ± one standard deviation in last 3 columns.

‡ Only formula feeding experiment not conducted on metabolic ward.

cholesterol is not retained in some other tissue when its concentration is made to decrease by dietary means We firmly believe that the answers to these and other important questions will be available in the next few years

In view of the fact that it has not been demonstrated in man that lowered levels of serum lipids will alter his susceptibility to atherosclerosis and in view of the many questions that remain unanswered in this year 1957, it seems inadvisable at this time to recommend that the general public eat more or less fat or avoid fat of any particular type We believe that much more basic information should be gathered before widespread changes in dietary habits are adopted It is entirely probable that this period of indecision will be short-lived, since progress is rapidly being made in fundamental areas of lipid biochemistry and nutrition

On the other hand, where the likelihood of death or disability from atherosclerosis is great—in patients with a personal or family history of the complications of arteriosclerosis and in those with hypercholesteremia—it is reasonable to act on an unproved hypothesis if the risk of so doing is small It seems justified in such cases to recommend dietary measures that depress levels of serum lipids We have presented two regimens that furnish large amounts of unsaturated fats at the expense of saturated fats and carbohydrates The maximum effect on serum lipids may not be achieved in hypercholesteremic patients for as long as eight weeks Applying these diets, it has been gratifying to observe the disappearance of skin xanthomas in patients with hypercholesteremia or with hyperlipemia Many of our patients with coronary insufficiency have experienced considerable improvement in angina However, our follow-up periods have been short (four months to three years), and it seems likely that their symptomatic improvement is the result of reassurance, education, rest, and rehabilitation, rather than secondary to lowered serum lipid levels We believe that, when the mechanisms of these dietary effects are better understood, more practical methods for influencing serum lipid levels will become obvious At that time it may be possible to make critical tests of the hypothesis that atherosclerosis is fundamentally a disorder of lipid metabolism

Summary

The hypothesis that dietary fats affect atherogenesis, however plausible and appealing, remains unproved Serum lipids can be altered by dietary means, and experimental data lead to the presumptive conclusion that unsaturated fats in the diet cause depressions in levels of cholesterol and phospholipids Serum triglycerides, on the other hand, can be made to rise on low-fat diets and to fall when fat intakes are high Thus, serum lipids are affected by both quantity and quality of ingested fat Radical changes in dietary habits are not recommended to the general public at this time However, patients with existent or threatening arteriosclerosis may be justifiably advised to eat higher proportions of unsaturated fats

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Figures 3, 4, 5 6, 7, and 8 are reproduced with permission from Lancet (**1**.943-953 [May 11] 1957)

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18 Footnotes 12 and 13

DIET AND THE EPIDEMIOLOGY OF CORONARY HEART DISEASE

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Researches ranging from laboratory experiments to epidemiology on a world-wide basis have led to the hypothesis that the fat content of the habitual diets of populations has an important effect on the frequency of coronary heart disease in those populations. The general nature and some of the evidence for this hypothesis have been summarized several times in recent years,[1] but progress in this field manages to outdate each new resume by the time it reaches print. Not that the previously cited facts or the hypothesis itself have been found to be erroneous, on the contrary, each new research adds detail, reduces areas of uncertainty and, so far, provides further reason to believe that along the line of this hypothesis we may hope to find effective measures to reduce the incidence of coronary heart disease.

As it now stands, the hypothesis may be stated simply as follows. Though many factors of nature and nurture may be involved in the multiple etiology of coronary heart disease, the development of the majority of cases in populations that suffer most from it, for example, the United States, is dominated by the long-time effects of a rich fatty diet and innumerable fat-loading meals. Among the results of the fatty diet are hypercholesteremia, which promotes atherosclerosis, and changes in the coagulability and other characteristics of the blood that favor thrombosis and inhibit fibrinolysis. All food fats are not identical in promoting hypercholesteremia, but those most favored and abundant in almost all fatty diets are more powerful in this direction than are those food oils that have an opposing effect. Further, the differences between the fats in respect to their effect on the serum cholesterol level are not paralleled by differences in their influence on blood coagulation.

New evidence supporting this hypothesis includes findings in regard to (1) the predictive value of serum cholesterol measurements, (2) errors in the argument that the Eskimo and the Navajo discredit the hypothesis, (3) the lack of effect of dietary cholesterol in man, (4) failure of alterations in dietary protein in man to affect the blood response to dietary fat, (5) the relative independence of population differences in serum cholesterol level from differences in physical activity and the frequency of obesity, (6) differences between Japanese living on different diets, (7) the frequency of coronary heart disease in rural eastern Finland, (8) the infrequency of thromboembolic phenomena in general in populations on diets low in fats, and (9) clarification of the cholesterol elevating and depressing effects of different dietary fats. The present discussion can only touch on each of these items briefly.

Predictions from Serum Cholesterol

It is well established that patients with coronary heart disease tend to have higher serum cholesterol concentrations than their clinically healthy counterparts. It is also known that patients with disorders generally involving elevated serum cholesterol levels—diabetes, myxedema, nephrosis, familial hypercholesteremia—are unduly prone to coronary heart disease. But the question has been asked as to whether the serum cholesterol concentration in the apparently 'normal' person has any predictive value about the development of coronary heart disease.

This question has now been answered in the affirmative from the cooperative study in which blood measurements were made on clinically healthy men who were then observed for about two years, during which time evidence of coronary heart disease appeared in some of the men.[2] It was found that 41 of 57 men in whom coronary heart disease developed had serum cholesterol levels, before the disease was clinically apparent, above the median for the entire group originally examined. Compared with this test, the widely publicized ultracentrifugal analysis of the Donner Laboratory in California did less well, although the difference between the two tests is not statistically significant. Basic data are given in table 1.

It should be observed that almost all of these "new coronary" cases were in men with serum cholesterol values, before the event, that would be considered unusually high in populations in which severe atherosclerosis and coronary heart disease are relatively rare, such as in Japan and among the Bantu. It seems that most middle-aged American men have hypercholesteremia in terms of the world distribution of serum cholesterol values. Autopsy studies indicate, further, that most middle-aged American men have severe coronary atherosclerosis. These facts are compatible with the theory that atherosclerosis is in considerable measure a reflection of the habitual serum cholesterol concentration.

The cooperative study previously mentioned, in fact, was not a test to see whether cholesterol measurements will detect or predict the presence of atherosclerosis. Even as a test to discover whether coronary heart disease can be predicted, it only examined the question of prediction of the appearance of the disease in the relatively near future—in a year or two. The "yield" of "new events" was small, not because only a few of the men examined will develop the disease, but because only a few will do so in a year or two. Eventually, several thousand, instead of less than 100, of these men will suffer from coronary heart disease if they behave in general like the white male population in the United States.

An occasional serum cholesterol measurement does not yield a reliable prediction of the danger of coronary heart disease for the individual, nor should it or any other measurement be expected to do so. At best, any blood measurement could only indicate the atherogenic potential of the blood at the time of blood sampling. In American men, at least, coronary atherosclerosis is often well marked before they are 30 years old, so that the clinical appearance of the disease in

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men in the 50s represents the cumulative effects of many years Further, even if we grant that serum cholesterol concentration is a major factor in atherogenesis, it must be observed that atherosclerosis itself is not the only factor in the development of coronary heart disease, though it may be a necessary basis in that development in most cases

On the other hand, serum cholesterol concentration appears to have high predictive value for populations This much can be said no population characterized by low serum cholesterol values has yet been found to have a high incidence of atherosclerosis or coronary heart disease

The Case of the Eskimo

Though Eskimos are an exceedingly small group of atypical people, their bizarre manner of life excites the imagination, including that of medical writers, who have been wont to endow them with a remarkable freedom from some of the ills that beset the rest of us Since the popular picture of the Eskimo sees him happily gorging on blubber, it is a short step to conclude that he eats a very high fat diet but suffers no coronary heart disease

TABLE 1 —*Blood Serum of 40 to 59-Year Old Men Who Developed Coronary Heart Disease Compared with Median (50th Centile) Values for Clinically Healthy* Population and with 80th Centile for Cholesterol in 303 Japanese Men, 40 to 59*

Measure		Total Patients	No Above 50th Centile	No Above Japanese 80th Centile
Ultracentrifuge	Sf 12 20	65	32	
	Sf 20-100	65	42	
Total Cholesterol		57	41	54

* See footnote 2 p 712 table 14

The fact is that nothing is really known about the incidence of atherosclerosis and coronary heart disease among Eskimos According to Ehrstrom,[3] arteriosclerosis is common among them, reaching an incidence of 29% in North Greenland, but the evidence is dubious, particularly in regard to atherosclerotic heart disease In any case we could not expect a high incidence of coronary disease among primitive Eskimos because few of them attain an age when they would be likely victims of the disease The majority of Eskimos no longer eat a high-fat diet,[4] and of those who adhere to the old way of life probably not more than a total of 100 or so men are beyond the age of 50, though estimates are difficult in a widely dispersed population who do not know their own ages and are notorious for appearing far older than their years

The diets of primitive Eskimos have been studied repeatedly, and they were, indeed, high in fat, but scarcely more so than the average U S Army diet However, the resemblance between the diets of Eskimos and American soldiers is confined to this one item, the primitive Eskimo diet was extraordinarily high in proteins, some 45% of calories versus around 13 to 14% in American diets, and the kind of fat differed greatly, being mostly derived from fish and marine animals and including practically none of the ordinary meat and dairy fats that bulk so large in the American diet

The net result is that on no grounds is it possible to suggest that the case of the Eskimo contributes anything, and certainly no exception, to the diet fat-coronary heart disease hypothesis

The Case of the Navajo

The idea that the Navajo is instructive in regard to the diet and coronary heart disease was put forth in a paper in which the only data are some serum lipid values for Navajo patients at the Fort Defiance Indian Medical Center[5] But the real point of the paper is the statement by the authors that 'Navajos usually eat a typically American diet," from which they go on to emphasize that 'coronary heart disease among them is rare" It is inferred that Navajos eat the same diet, including the fats, as the rest of us in the United States but that they have low serum cholesterol values and almost never have coronary heart disease

The dietary information on which these statements were based consists of the replies of 100 Navajo patients to questions as to how often they ate certain foods These data, not given in the paper just noted, were made available earlier by Dr Gilbert[6] and are reproduced here as table 2 Very similar replies were obtained by Darby and co-workers[7] from a larger sample of Navajos questioned at Ganado and Piñon, settlements more central in the reservation than Fort Defiance

How many 'typical white Americans eat meat, in any form or amount, less than once a day? Gilbert's data indicate that 55% of the Navajo men at Fort Defiance are in this category, at Ganado the figure is reported as 41% and at Piñon it is 56%[7] In regard to milk, the question of form and amount is particularly important The percentages of Navajos who have some milk daily are reported as 68%, 81%, and 61% for Fort Defiance, Ganado, and Piñon, respectively, but our dietary team found that this "milk" is almost exclusively simply evaporated milk used in coffee

The Navajo Reservation Extension Report for 1953 lists the livestock inventory as 17,000 beef cattle, 387,000 sheep, and 68,000 goats but that there were no dairy cows, poultry, or swine 'Meat' to the Navajo generally means mutton and goat meat, they eat extremely little beef and substantially no pork or poultry The total meat consumption per capita amounts to 2 7 oz daily for the Navajo, according to the Extension Report data, for the U S as a whole the figure is 6 4 oz for beef and pork alone, and poultry contributes another 1 3 oz Apparently, the meat fat intake of the Navajo is something like one-fourth to one-third that of the U S average, and the discrepancy in regard to butterfat is much greater

TABLE 2 —*Eating Habits as Stated by 100 Navajos at Fort Defiance**

Food Item	% of Navajos Eating Items Less than		
	Twice Daily	Daily	Twice Weekly
Meat	60	55	34
Lard	61	34	16
Eggs	99	83	59
Butter	98	89	79
Milk†	91	68	59

* Data from Gilbert[6]
† Almost solely condensed milk in coffee

We found it very difficult to get quantitative estimates of the nutrients in Navajo diets We were able to obtain records of lard purchases as well as of other staples, including flour, sugar, and potatoes, in the Fort Defiance community For nine families, who produced no food of their own and were thought to be typical by the local post agents, complete purchase records of all foods could be obtained for periods of several months The calories supplied by all fats, including invisible fats ranged from 18 to 34% of the total calories in the diet, and most of the fat was in the form of lard Table 3 gives the data for a family that seemed to be in the center of the diet distribution The average is 25 5% of calories from fats, with only 5 2% being from meats, eggs and dairy products, as compared with the United States national average figures of something over 40 and 25% respectively This is a diet much like we found in Sardinia, except that lard takes the place of olive oil

From what is known of the Navajos and their diet we should expect a low incidence of coronary heart disease Certainly it would be predicted that myocardial infarctions would not often be seen in this small, widely dispersed population in which children are more numerous than adults This is a relatively primitive society, afflicted by the conditions that lead to a low average age According to census returns, only 14% of Navajos are 45 years old or older, the corresponding figure for United States whites is 30%

Table 3 —*Sources of Calories in Diet of Typical Navajo Family from May until August*

Item	% of Calories	
	Total	As Fat
Lard	18 0	18 0
Meat and eggs	5 9	4 1
Flour bread cornmeal	44 1	1 2
Sugar jam candy pop	15 0	0 7
Potatoes	12 7	0 2
Evaporated milk and ice cream*	2 2	1 1
Beans vegetables fruits	2 1	0 2
Total	100 0	25 5

* Three pints of ice cream bought in 9 weeks

But coronary heart disease is not vanishingly rare among the Navajos In the year 1955-1956, among a total of only 115 men patients admitted to the medical division of the Indian Medical Center Hospital, there were 8 diagnoses of arteriosclerotic heart disease and 2 myocardial infarcts From what we know of the diet, this is at least as many as we should expect on the basis of the diet fat–coronary hypothesis No one knows the actual age-specific incidence or mortality, but it is clear that there is no basis for claiming that the Navajo is an "exception to the rule observed in other populations

Lack of Effect of Dietary Cholesterol in Man

The fact that various animal species differ greatly in cholesterol metabolism, at least in quantitative terms, long caused confusion between the effects in man of fats and of cholesterol in the diet In contrast to the extreme sensitivity of the rabbit and the chick to cholesterol in the diet, man is remarkably resistant In the range of zero to as much as 2 Gm of ingested cholesterol per day, human blood serum shows practically no relationship with the intake, either in controlled experiments or in comparisons between persons and population groups whose diets differ greatly in cholesterol content but are otherwise comparable[8]

Even tremendous dosages of cholesterol added to the daily diet of man—up to 30 Gm per day—have only a trivial effect unless the dietary cholesterol is accompanied by additional fats Since natural human diets rarely surpass 1 Gm of cholesterol per day, the convincing evidence that the human serum concentration is so resistant to exogenous cholesterol means that for all practical purposes the dietary cholesterol variable may be disregarded and attention concentrated on other characteristics of the diet

Unimportance of Dietary Protein

Human populations characterized by low serum cholesterol levels and relative freedom from atherosclerosis sometimes subsist on diets that are low in proteins as well as in fats The question then arises as to whether the diet protein contributes to the findings in the blood and the arteries In some animals, the combination of high cholesterol feeding and diets low in proteins, particularly in sulfur-containing amino acids, produces hypercholesteremia and atherosclerosis[9] Such an effect of protein is obviously in the opposite direction to an effect that would explain the rarity of coronary heart disease in human populations, such as the Bantu, whose diets are low in fats and proteins, but this fact has been ignored by some enthusiasts who hopefully seek to ascribe hypercholesteremia in man to deficiency rather than to excess of some nutrients in the diet

Large daily supplements of methionine had no effect on the hypercholesteremia of American men who continued on their usual diets without other alterations[10] In completely controlled experiments on groups of men we found that the isocaloric exchange of carbohydrate and animal protein (casein), so that the diets covered the range from 11 to 20% of calories from proteins, was without effect on the serum cholesterol level and that changes in the protein intake did not modify the usual response to changes in the fat content of the diet[11] It is well known, of course, that the rice diet, which is low in both proteins and fats, is an effective means for lowering the serum cholesterol level in man That the low fat, and not the low protein characteristic of the rice diet is primarily responsible for the serum cholesterol effect, is readily shown by the fact that the addition of butterfat or beef fat to diets of this type will prevent the fall in serum cholesterol level that occurs otherwise In our laboratory an early method of assaying the effects of fats on the serum cholesterol level was to use essentially a rice diet for some weeks and then to substitute, isocalorically, fat for part of the carbohydrate in the rice diet

Finally, it should be observed that, though a few populations have diets low in both proteins and fats, most of the populations of concern in these comparative population studies have diets that vary little in protein content though there is great variation in dietary fat The percentages of calories provided by proteins in the diets of the populations of Japan and Italy with a low incidence of coronary disease are almost identical with the corresponding values for populations of the United States and Finland with a high incidence of coronary disease

Physical Activity Versus the Diet

In many populations in which the serum cholesterol level is low and coronary heart disease is relatively rare, heavy manual labor is more common than in the United States and some other areas where the incidence of coronary heart disease is very high This fact, coupled with the reports of the Registrar General of England and Wales, going back to 1931, about differences between social classes in mortality rate ascribed to arteriosclerotic heart disease, gave rise to the theory that physical inactivity promotes the disease

J N Morris and his colleagues have emphasized the effect of lack of exercise and have produced data on postal employees and London busmen in support[12] The cited differences between "active" and 'inactive" postal employees are trivial, but among the busmen it was found that the "sedentary drivers" suffered about twice as many occlusions, at the same age, as did the active" conductors The interpretation of this finding, however, has recently become more questionable than at first sight because of the discovery that the two groups of employees were different in at least one major respect before they embarked on their careers of different levels of activity[13] As figure 1 shows, at the outset the drivers were much more often fat, as indicated by trouser-waist size, than the conductors As they stayed on in their jobs, both groups tended to get fatter and fatter, but the basic difference between the groups persisted

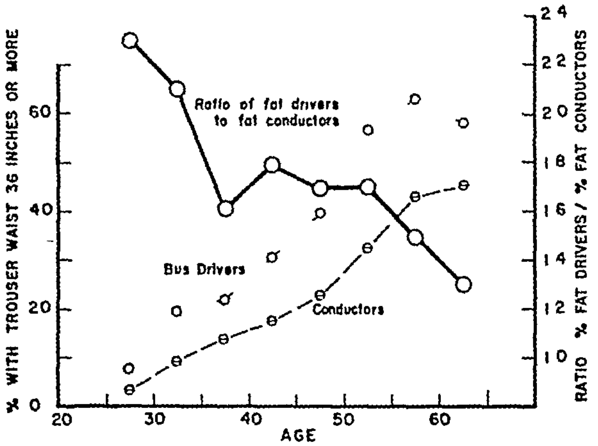

Fig 1 —Frequency of trouser-waist size 36 in or more issued to 2,270 London bus drivers and conductors Data from Morris, Heady, and Raffle[13]

In any case, differences in physical activity are frequently accompanied by differences in the proportion of fat in the diet As activity increases, the demand for calories follows suit and the tendency is for the extra calories to be obtained from the staple carbohydrate foods, without a proportionate increase in meats, dairy products, and other high-fat foods[14] This is illustrated in table 4 by comparisons of two types of employees in the same place and by the comparison between rural and urban dwellers, who generally differ considerably in their exercise habits Greater differences than these between heavy and light workers are indicated from semiquantitative data obtained in Sweden and South Africa[14]

Table 4 —*Comparison Between Sedentary (Urban) Versus Manual (Rural) Workers in Regard to Percentage of Calories Provided by Fats in Diet**

Group	% Calories from Fats	
	Sedentary (Urban)	Manual (Rural)
Drug factory employees U S	40 4	37 0
Mine company employees Scotland	35 3	33 5
U S urban vs rural	42 0	37 0
Japan urban vs rural	9 7	6 4

* Data from Keys and others[14]

The rather regular progression of coronary heart disease mortality with social class reported from England, and loosely attributed to physical activity, is not confirmed by recent studies in the United States[15] and in Norway The very careful cooperative study of myocardial infarction in Oslo[16] not only confirms previous reports of the large change during the war years when the local diet was low in fats, but clearly fails to show any large differences between the incidence in men in different occupations Rationing began in Norway in 1939, and food shortages, especially in fat, were seriously felt by the latter part of 1940 The first change in mortality ascribed to heart disease was noted for the year 1941, and thereafter the mortality rate from this cause fell steadily until 1945, when fat imports were resumed Cardiac mortality rose slightly in 1946 and continued to rise thereafter, but the prewar rate was not regained until after 1949 Relevant data are summarized in table 5

Certainly physical activity does not explain the large differences in serum cholesterol concentration observed between populations eating different amounts of fats[15] These differences persist when the men in the several populations are matched in regard to physical activity as well as in age Table 6 summarizes the findings in one occupation category city policemen and firemen in five regions differing in the percentage of calories provided by fats in the diet It may be noted, too, that the frequency of obesity in these men was unrelated to the serum cholesterol level, the fattest men in table 6 were those in Minneapolis, but

Table 5 —*Percentage Distribution of Men Under 70 with Myocardial Infarction According to Occupation in Oslo and Aker, Norway, in 1935-1949, Together with Expected Approximations from Census Returns for Distribution of Ages and Occupations**

Occupation	% Observed	% Expected
Employers	13 7	14 8
Executives	5 2	3 4
Salaried employees in administration and business	11 2	10 7
Salaried employees in health education technical service	9 5	10 9
Foremen	5 2	5 2
Workers and not classifiable	40 4	39 5
Own account workers and inactive	14 7	15 5
Total	100 0	100 0

* Data from Life Insurance Companies Institute 1956

when the fattest of these men are omitted (all those with relative body weights of 112 or more) the serum cholesterol average is unchanged Similar regularity in the relationship between dietary fat and serum cholesterol characterizes matched samples of sedentary men and of men doing very heavy manual work

The Case of the Japanese

Of all large countries that provide detailed vital statistics, Japan reports the lowest mortality from coronary heart disease, the 1953-1954 death rate for men aged 50-54 being less than a tenth that for white American men, while the rate for women of the same age is less than a fourth that for white American women That these differences are something like the true figures is indicated by a large study on the frequency of severe coronary atherosclerosis found in routine autopsies in southern Japan [17] and by the good agreement between cardiovascular mortality in the vital statistics and the morbidity found in a nationwide health survey in Japan [18]

TABLE 6 —*Serum Total Cholesterol Means (and Standard Errors) in Firemen and Policemen Aged 40 to 51 in Various Cities, Together with Mean Relative Body Weight and Approximate Percentage of Calories Supplied by Fats in Diet*

Place	No Men	Mean Age	Relative Weight	Cholesterol Mg /100 Ml	% Fat Cal
Naples Italy	76	43 8	101 7	169 5±4 0	20
Cagliari Sardinia	29	45 2	102.6	193 8±6 6	25
Bologna Italy	28	45 1	103 6	193 8±7 1	30
Malmö Sweden	38	44 9	101 6	237 2±7 0	38
Minneapolis U S A	119	44 2	109 1	250 2±3 8	42
Minneapolis U S A selected*	78	44 7	103 5	249 7	42

* Omitting 41 men with relative body weight of 112 and over

In 1956, a team from the United States, including Dr Paul Dudley White and Dr B Bronte-Stewart in addition to myself, studied the situation in southern Japan It was abundantly clear that angina pectoris and myocardial infarction are indeed uncommon there, both in the large hospitals and in the small private clinics This is not dependent on a relative scarcity of older people in Japan or a very high death rate from other causes As a matter of fact, the total death rate (all causes combined) for middle-aged men in Japan is less than that for the United States, in spite of the fact that tuberculosis is still a major problem in Japan, with a death rate four or five times that in the United States

It was important, therefore, to study diets and serum cholesterol levels among Japanese This was undertaken in cooperative researches in Fukuoka Prefecture, Kyushu, in Hawaii, and in Los Angeles [19] Five groups of Japanese men were studied on the Island of Kyushu Dietary and serum cholesterol data on those aged 40-49, inclusive, are summarized in figure 2 The relationship between these variables for the men in Japan conforms to what we have found in non-Japanese populations elsewhere For comparison we studied Japanese in Los Angeles, where, as figure 2 shows, the local "Nisei" have adopted the usual American diet, and in Hawaii, where the Japanese have moved far toward the typical American diet but are still intermediate between Japan and the United States in this regard

As in our other population comparisons, the differences between the various Japanese groups in serum total cholesterol level are entirely accounted for by differences in the beta-lipoprotein cholesterol concentration, the average alpha-lipoprotein cholesterol concentration remains narrowly within the range of about 36 to 44 mg per 100 ml of serum and shows no trend to vary with the diet Also, as in our other population comparisons, the cholesterol differences are not dependent on differences in relative obesity, though the frequency of obesity rises in the order from Japan to Hawaii to Los Angeles For example, by omitting the thinnest men in Shime and the fattest men in Los Angeles, we were able to match in relative fatness 25 men each in Shime, Hawaii, and Los Angeles, all aged 40-49 and all engaged in light or sedentary work The average serum beta-lipoprotein cholesterol concentrations for these groups were 124 8, 178 2, and 206 0 mg per 100 ml, respectively

The frequency of atherosclerosis and coronary heart disease among Japanese in Hawaii and in California corresponds, at least roughly, with the cholesterol and dietary findings The frequency of severe atherosclerosis among Japanese in Hawaii has been studied recently,[20] and we have checked the data to assure comparability with the autopsy data in Minnesota and Kyushu The result is that the frequency of grades 3 and 4 (on a scale of 0 to 4) atherosclerosis in routine autopsies, all causes of death, in middle aged Japanese men in Hawaii is about half that seen among local Caucasians there (or among men in Minnesota) and some five times greater than among men in Kyushu Comparable data are not available for Japanese in California, but the frequency of coronary heart disease there in the Japanese Hospital and in the practices of Los Angeles physicians is certainly much higher than among Japanese in Hawaii Further, according to the vital statistics, coronary heart disease is the leading cause of death among Japanese in California, just as it is among the native white population

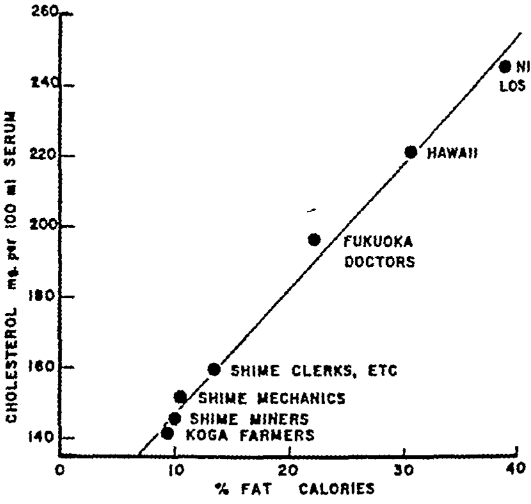

Fig 2 —Mean serum total cholesterol level and the average percentage of calories provided by total fats in the diets of 284 clinically healthy Japanese men aged 40-49 years in seven groups

In Japan, as in Hawaii and Los Angeles, most Japanese men smoke heavily, indulge regularly in alcohol, dodge traffic, are slaves to the alarm clock, the radio, and telephones, complain about bureaucracy and taxes, worry about inflation, and are avid sports fans Business operations are intricate, giant banks and industrial concerns dominate the economic scene, competition is keen, labor is restless, and farmers demand (and get) subsidies Fathers despair of the younger generation and cannot understand how their wives' new clothes can cost so much But, though alike in so many ways, Japanese in Japan, in Hawaii, and in California differ in their diets, in their serum cholesterol concentrations, and in their proclivity to develop coronary heart disease

Studies in Finland

Finland *is less industrialized* than Japan, a large proportion of the population is strictly rural and lives widely scattered in the quiet countryside There is little housing congestion, motor traffic is light, hard physical work is the rule rather than the exception, and probably no other country can boast so high an average level of physical fitness According to some ideas, Finland should be peculiarly free from coronary heart disease, but according to vital statistics it competes with the United States in the great frequency of the disease

For these reasons, and because the level of Finnish medicine and medical services and records is very high, systematic research on coronary heart disease and the mode of life in Finland was begun in May, 1956, with a collaborative group including professors Paul Soisalo and Paavo Roine and Dr Martti Karvonen This work is still in progress, but several facts are already clear

First, the frequency of coronary disease is indeed very high[21] Table 7 summarizes the experience in 1954 of the two big general hospitals of Helsinki The accuracy of diagnosis and comparability to diagnosis in the United States was checked in the Kivela Hospital by Dr Paul Dudley White Among all medical inpatients, excluding those with infectious, parasitic, and mental diseases, 13 8% of the patients had coronary heart disease (International List No 420 and 422) and 18 9% of the deaths were caused by it

Perhaps even more striking is the experience of the Joensuu Central Hospital, in a town of 20,000 but caring mainly for the farming and woodcutting population of the area It was found that about 10% of the patients in the 92 beds of the medical division have suffered myocardial infarction with typical electrocardiographic findings In the years 1954 and 1955, among 172 patients with myocardial infarction, 54 (including 9 women) were under the age of 50 years

The second point of interest from the work in Finland is the frequency of very high levels of serum cholesterol observed in samples of the population in rural east and west Finland as well as in Helsinki In Helsinki the average serum total cholesterol concentration in two groups of men aged 40-49 (members of the Helsinki fire department and members of the Helsinki Rotary club), studied in collaboration with Dr Martti Karvonen and Dr Flaminio Fidanza, was over 260 mg per 100 ml, higher than in any other population samples studied in these world-wide researches

The third point from the Finnish research is the fact, emerging from the careful dietary surveys conducted by Professor Paavo Roine and his colleagues, that the average amount of fat in the diet is high and the per capita consumption of butterfat is one of the highest in the world

The research in Finland, then, though far from completed, shows that there is at least one predominantly rural population in the world who live at a high rate of energy expenditures but who have a very high incidence of coronary heart disease Further, from what is known of the diet of this population, the coronary picture is consonant with the hypothesis about the importance of dietary fat

Thromboembolism in Relation to Low-Fat Diets

Insufficient attention has been paid to the frequency of thromboembolic phenomena in general in relation to the character of the diet It seems to be well established that postsurgery, postpartum, and post-trauma thromboembolic complications are very rare in southeast Asia, where the diets are low in fats, as compared with the incidence in northern Europe and the United States[22] In Africa and Asia, in my discussions about this with surgeons and inspection of hospital records, the pattern was consistent wherever the diet was low in fats, thromboembolic phenomena of all kinds were rare

Table 7 —*Experience of Medical Departments of Two Hospitals in Helsinki in 1954*[*]

	Hospital		
Category	Maria	Kivela	Total
Total inpatients	6 184	8,754	14 938
Total deaths	336	597	923
Coronary inpatients†	776	1 281	2 057
Coronary deaths	55	119	174

* Data from Helsingin Kaupungin Tilasto[21]
† International Lists no 420 422.

Strong evidence as to the reality of a relationship between dietary fat and the tendency toward thrombosis was obtained from an analysis of the experience in the hospitals of Oslo during and after World War II[23] During the period of subsistence on low-fat diets the incidence of thromboembolic complications after major surgery in Norway fell to less than a third of the prewar incidence, and it rose to reach or surpass the prewar level as the dietary fat was restored in the postwar years The change in this respect was even more striking that the well-known change in the mortality rate from coronary heart disease during that period in Norway and suggests, indeed, that some of the wartime decline in coronary deaths may have reflected a general decreased tendency toward all kinds of thrombosis In other words, it is unnecessary to postulate a major change in atherosclerosis to account for all of the alteration in coronary mortality

Part of the explanation for such differences in the frequency of thrombosis may be at hand in the fact, now established, that a fatty meal often induces a state of relative hypercoagulability of the blood for some hours[24] It is possible also that, as recently reported, inhibition of fibrinolysis after a fatty meal may be involved[25] It is clear that the thrombosis side of the coronary heart disease problem has been neglected in the recent concentration on atherosclerosis but that it, too, may well involve dietary fat

Serum Cholesterol Response to Different Dietary Fats

The precise relationship between the serum cholesterol concentration and the fats in the diet of man has been somewhat confused by the finding in laboratory experiments that not all fats have the same effect on the blood serum cholesterol and cholesterol-containing lipoproteins This question has been less prominent in epidemiologic studies because, in most populations, the fats added to the diet as the diet fat is increased run to a common pattern of meat and dairy fats and these are the fats commonly removed when the diet is changed to a low fat level In other words, in most situations the kind and the amount of fat change is parallel

In any case it now seems to be possible to predict with fair accuracy the serum cholesterol response to a change in the amount or character of the fat in the diet This has been found with the data from six years of dietary experiments on groups of men under completely controlled conditions[26] The fats tested include coconut oil, olive oil, lard, corn oil, cottonseed oil, sunflower seed oil, butterfat, safflower seed oil, and sardine oil as well as the mixed fats of the usual American diet The amounts of the fats tested range from about 8 to slightly over 40% of the total calories of the diet

If the dietary fats are expressed in terms of the percentages of total calories in the forms of saturated, monoethenoid, and polyethenoid fatty acids (as the glycerides), statistical analysis of the average serum cholesterol differences of the same men receiving different fats shows that monoethenoid fatty acid (oleic acid) has relatively little effect, but saturated fatty acids raise the serum cholesterol level whereas polyethenoid fatty acids (chiefly linoleic acid) lower it Further, 69 sets of dietary comparisons clearly show that, per gram of fat, the saturated fatty acids have twice as much effect as the polyethenoid fatty acids, including linoleic acid It was found also that the extremely unsaturated fish oils have no greater effect than does cottonseed oil Apparently additional points of unsaturation beyond two double bonds have no effect

In practical terms, these newly found relationships show that 1 Gm of butterfat has about three times as much effect as 1 Gm of corn oil or sunflower seed oil The removal of 1 Gm of butterfat from the diet has about the same serum cholesterol lowering effect as the addition of 3 Gm of one of the high linoleic acid oils

These systematic studies explain many confusing points in the literature on dietary experiments, they explain the consistency of the relationship between total dietary fat and serum cholesterol in epidemiologic studies, and they provide sound guidance for dietary alterations Among other things, it is now evident that the effort to control the serum cholesterol level merely by adding unsaturated or linoleic acid fats to the diet is doomed to failure because the amount required to achieve much consequence would involve an impossibly large addition of calories On the other hand, it is clear that it is unnecessary to prescribe a diet extremely low in total fats to lower the serum cholesterol, exclusion of the saturated fats (in butterfat and meat fats) has the greatest effect, and this effect may be enhanced by substitution of such oils as corn oil and cottonseed oil

As a practical matter it would seem undesirable to use a high-fat diet of any fat composition because of the high calorie density it provides, with the resulting danger of producing obesity, and because of the possible undesirable effects on blood coagulability and fibrinolytic power

Conclusions

The hypothesis that the diet, through its fat content, plays an important role in the development of coronary heart disease, is sustained by a wide variety of new evidence from both laboratory experiments and epidemiologic studies It appears probable that the dietary fats exert their effects not only through affecting the serum cholesterol level and thus influencing atherogenesis but also through effects on the tendency to develop thrombosis Although the more unsaturated fats may not promote hypercholesteremia, the more powerful effect of the saturated fats is such that blood cholesterol levels cannot be satisfactorily controlled unless the saturated fat intake is reduced With a judicious choice of fats in the diet, serum cholesterol level can be controlled without imposing extremely low-fat diets But the use of diets very high in any kind of fats seems undesirable because of the high calorie content of such diets and because of the possibility of undesirable effects on blood coagulation and fibrinolysis

The facts cited in this paper are, or will be, separately published in detail, with appropriate acknowledgments to the many persons and organizations who have been involved in the work But here special mention should be made of those individuals whose collaboration and assistance was important in the researches not yet reported in full Research on Japanese men—Drs Noboru Kimura and Akira Kusukawa of Kyushu University Medical School, Dr Masakazu Yoshitomi of the Shime Hospital, Dr B Bronte-Stewart, now at Oxford University Medical School Dr Nils P Larsen of Honolulu, Mrs Margaret H Keys of St Paul, Mrs Shizuko H Miyamoto, now of Santa Ana, Calif, and Drs John L Denny, Benjamin Kondo, and Tom Watanabe, all of Los Angeles Research in Finland—professors Paul Soisalo and Paavo Roine, Drs Martti Karvonen, Flaminio Fidanza, and Pir Ahrenberg Experiments at Hastings—Drs Joseph T Anderson and Francisco Grande Data on Navajos—Mrs Nedra Foster, Mrs Margaret H Keys, Mr Robert W Young Assistant to the General Superintendent of the Bureau of Indian Affairs Navajo Agency, and Dr David L Duncan, Assistant Area Medical Officer, Window Rock Office, Department of Health, Education and Welfare Clinical Evaluations—Dr Paul Dudley White

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Children's Skin Tumors—Nevi are the most common tumors of childhood Pigmented nevi are classified into blue nevi, intraepidermal nevi, junction nevi, intradermal nevi (or common mole) and combination types Cutaneous malignant disease in children is rare Malignant melanoma is rare before puberty Wholesale removal of benign pigmented nevi in children should be condemned However, junction nevi located on the palms, soles, genitalia or waistline—that is, in areas subject to frequent trauma—should be excised Hemangiomas in infants are the most common tumors for which advice is sought Not all hemangiomas regress spontaneously, and on occasion the persistence or progression of such a lesion may bring about life-long unsightly deformities Therapy for this type of tumor is simple when given early in life Since a few topical applications of solid carbon dioxide or liquid nitrogen will easily and effectively eliminate tumors of this type, it seems foolhardy to permit such a lesion to increase tremendously in size Strawberry marks that undergo involution, spontaneously or as a result of trauma, may heal with conspicuous scarring or change into a mixed fibrovascular structure It is generally agreed among dermatologists that irradiation, particularly with radium, is the treatment of choice for cavernous hemangiomata (deep type) if given at an early age The best and quickest results are obtained if treatment is begun before the third month of life when endothelial cells of the vascular channels are still immature Injection of sclerosing solutions is the next most widely used method of treatment Hemangiomas involving the ears, nose, lips or eyelids should be treated at once, preferably within a month of the time they appear —B A Newman, M D , Cutaneous Tumors of Children, *California Medicine*, January, 1957

NUTRITIONAL STUDIES RELATING TO SERUM LIPIDS AND ATHEROSCLEROSIS

THERAPEUTIC IMPLICATIONS

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Most of us in research feel somewhat hesitant about "answers' to the many questions on therapy that arise in connection with any rapidly changing area of investigation Yet, perhaps we do have a responsibility to attempt to provide today's answers for today's questions This paper is made up largely of questions and answers These are not fictitious questions, almost all of them have come to us from physicians The following statements concerning experimentally induced atherosclerosis will provide a background

Atherosclerosis is induced experimentally in several species of animals, including primates, usually only when the level of total cholesterol in the serum is increased There are both intensity and time factors, the greater the elevation of cholesterol, the less time needed to produce lesions of atherosclerosis In our experience, the earliest lesions are found under the endothelium of the aortic and mitral valves, the portion of the septum between these valves, the aorta, and then the coronary vessels True intimal plaque formation is obtained later

Coronary thrombosis with myocardial infarction has rarely been seen in connection with experimentally induced atherosclerosis, so rarely that it would be difficult to say that it had been produced experimentally Myocardial infarction has occurred in experimental animals only in association with extensive atherosclerosis and hypercholesteremia At this meeting a report has been made by Dr W Stanley Hartroft and his colleagues of the production of coronary thrombosis in rats This is of considerable interest, but until the original data is available for study and the observations have been confirmed it is not possible for us to comment further

The amount and the type of fat in the diet affect the development of experimental hypercholesteremia in rats and monkeys Studies with experimental animals suggest that the serum cholesterol level is more responsive to the type than to the quantity of dietary fat In general, diets containing fats that are rich in polyunsaturated fatty acids, such as corn and cottonseed oils, are associated with lower levels of cholesterol in the serum than are diets in which the monounsaturated and saturated fatty acids predominate There are several indications that total unsaturation of fat by itself, as measured by iodine value, or even total linoleate by itself, is not an accurate gauge of the effect of the fat on the serum lipids

Use of heparin and other anticoagulants under careful supervision represents a forward step in the therapy of coronary thrombosis Although the heparin like anticoagulants accelerate the disappearance of various lipid fractions from the blood, not much is known about their effect on the development of experimental atherosclerosis in animals or of atherosclerosis in man In our opinion, the therapeutic use of anticoagulants in man today is not in the realm of nutritional studies and will not be further considered in this paper

What about sitosterols? So far, 11 investigators have published clinical studies in which sitosterol has caused significant reduction of the serum cholesterol level in most but not all hypercholesteremic patients Two studies have reported sitosterols to be essentially ineffective

The eventual usefulness of sitosterol in controlling hypercholesteremia cannot be predicted with confidence on the basis of the present evidence It would seem that reductions in the serum cholesterol level can be obtained with the administration of adequate amounts of plant sterol before each meal The physical characteristics of the preparation may make acceptance by patients somewhat difficult owing to the chalky nature of the material These compounds may act not merely by blocking the absorption of dietary cholesterol, but they may also inhibit the reabsorption of biliary and enteric cholesterol

What about lipotropic substances, such as choline, methionine, and inositol? Under certain experimental and clinical conditions these substances may be limiting factors in fat transport and metabolism Their role in the regulation of serum lipid levels and in the metabolism of fat in arterial tissue is less clear We know of no evidence that such lipotropic substances have a useful role to play in the prevention or treatment of atherosclerosis in man

Question As a doctor interested in preventative medicine, should I urge dietary change for the public and for all my patients as a possible means of reducing the incidence of atherosclerosis?

Answer Not at this time To the public in general, current research on atherosclerosis provides hope that important advances in this field may be at hand However, no developments have occurred to justify a marked change in our current concepts of a well-balanced, moderate diet suited to the living habits of the individual Researches on atherosclerosis involve a variety of epidemiologic and statistical studies and observations on persons under rigid dietary control

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In addition a variety of animal studies have been done and others are in progress Although all of this work is of interest and of potential value, it has not, in our opinion, conclusively established any single dietary factor as being the cause of atherosclerosis much less the cause of coronary thrombosis

Question Are fats just empty calories? Is it necessary to have them in our diets?

Answer Some fat is important in the diet It may well be that some of us are eating too much fat or too much of certain types of fat, but there may also be many persons who are leading active lives who do not get enough fat Fat is a concentrated source of energy and is needed to provide adequate calories without undue bulk for people who have considerable physical activity Calories, whether empty or not, are still necessary!

Fat is important to us in preventing hunger between meals The satiety value of fat is frequently a factor in reducing diets Furthermore, some fat in the diet makes for more palatability Fats are a source of fat-soluble vitamins Fats spare protein In animal studies certain fatty acids have been found necessary for growth, lactation, and proper skin condition Fats are the only source of these essential fatty acids

Question Should we attempt to restrict cholesterol in the diet?

Answer No rigid restriction seems necessary It has been well shown that alteration of dietary cholesterol from as little as 200 mg to as much as 1,000 mg per day does not affect the level of the cholesterol in the blood Practically speaking, these quantities cover a range that represents anything from no milk and no eggs to a quart of whole milk and two eggs

Question Do not we know that lowering the serum cholesterol level is a means of reducing the formation of atheromatous plaques?

Answer If this question had been phrased the other way, namely, that elevating the serum cholesterol level produces atheromatous plaques, we would have been tempted to say "yes" In animal studies it has been found that elevating the serum cholesterol level results in atherosclerosis, although thrombosis and infarction have not usually been produced in such animals Whether the high cholesterol levels cause the plaques, or whether both are the result of other factors, is not known In man, there is only indirect evidence, however, that an elevated serum cholesterol level causes atherosclerosis Nevertheless, myocardial infarction is more prevalent in men under 50 with elevated levels of cholesterol, and this fact certainly should be taken into account by the practicing physician, particularly when he is dealing with patients suffering from coronary artery disease or with those whom he determines to be in a more susceptible group We should be applying every reasonable hypothesis in the treatment of the patient when we do not know the specific answer, but in our thinking about diets for the public, we should keep in mind that, although the serum cholesterol level and atherosclerosis in man undoubtedly are interrelated, important details of this relationship are not understood

Question What is an elevated serum cholesterol level? How often should this level be measured, and should any other lipid measurements be made?

Answer To answer the last part first, one can say that the total cholesterol level of the serum gives as much (or as little) information for diagnosis, prognosis, and therapy of atherosclerosis for the individual as any other chemical measurement available today Additional lipid measurements are useful in research, but, as far as we know, they do not aid in taking care of the patient

Accurate and reproducible determinations of the serum cholesterol level can be obtained only with skill and care Total cholesterol levels show appreciable spontaneous variations that are usually unexplained These biological variations may be as much as plus or minus 20% Thus, not too much faith should be put in a single cholesterol value, particularly if it is an initial determination and seems 'out of line We would suggest that, if possible, the initial determination be followed by another, one to seven days later Patients on specific diet therapy might have total cholesterol levels determined monthly, and a yearly cholesterol level determination should certainly be a part of an annual health examination of all adults perhaps of adolescents as well

Now the first part of this question—what is an elevated cholesterol level? Scientifically speaking, we do not know To some extent, this question must be considered in terms of the age of the patient and certainly in terms of sex A paper from our laboratory has appeared in the April, 1957, issue of the *American Journal of Medicine*, dealing with the cholesterol levels in the serum of Americans It is based on studies on 1,920 adults (1,508 males, 412 females) who appeared healthy and fulfilled simple clinical criteria of normalcy,' particularly with regard to cardiovascular disease, and 273 men with definite evidence of myocardial infarction, 141 men with definite angina pectoris, and 23 women with evidence of myocardial infarction From these studies we might say that a serum total cholesterol value is elevated if it is above the mean of 240 mg for the man of 40 to 50 years who is apparently well, for the woman of that age, any value above 225 mg should be considered to be elevated

Because comparative studies with people of other countries where coronary thrombosis is less prevalent suggest that mean values of apparently healthy adults in this country may be high, it might be desirable if the values of serum total cholesterol for both sexes were lower It is interesting that if one sets the desired limits at one standard deviation below the means of the male coronary group in the age range 40 to 50 years one gets a value of 212 mg per 100 cc It makes better sense to dissociate oneself, so far as serum cholesterol levels are concerned, from a group of patients with known coronary artery disease than to be included in a group who appear well but may have latent disease An important difference may exist between cholestrol levels that are satistically "normal" and levels that are 'desirable "

Question If a patient has an elevated cholesterol level and is obese, what diet should be recommended?

Answer The hypercholesteremia and the obesity must both be considered, and they may or may not be related Weight reduction on any type of a well-balanced diet that supplies a deficit of calories is usually indicated for the obese patient The possibilities of treating hypercholesteremia by dietary means will be dealt with separately

Question Should "crash" diets be used to obtain quick weight reduction?

Answer Although the statement 'a screwball needs a screwball diet is facetious, it contains a germ of truth, and, we might add, such diets are usually recommended by 'screwballs" For reducing diets to be effective, they must be made up of foods that are palatable, available, can be afforded, and that provide adequate nutrition, also, the diets must be adhered to for a long time

Question If a patient has an elevated serum cholesterol, what diet should be recommended?

Answer If the 'patient' is an apparently healthy person in for a checkup, we would suggest the following alternative, using a consistent decrease in the total cholesterol in the serum as a measure of success

First of all, if weight reduction is indicated, any type of a well-balanced diet that is low in calories should be prescribed However, it is questionable whether a decrease in the serum cholesterol level that is induced by weight reduction can be maintained after caloric equilibrium has been reestablished A moderate increase in physical activity might be tried, such as walking half a mile two or three times each day In addition to weight loss and exercise, one might try a diet in which the fat is reduced to 25 to 30% of total calories Such a diet would entail a reduction of most of the visible fats This can be accomplished by trimming fat from meat, use of lean meats and smaller servings, more fish, and consuming less butter, margarine, whole milk, cheese (except cottage), bacon, and egg yolks It really is not known whether a diet in which the fat has been reduced to 25 to 30% of the calories will diminish coronary artery disease, although such a diet should result in a moderate weight loss for most people

Another possible dietary regimen would provide the accustomed 40 to 45% of total calories from fat and would emphasize the unsaturated fats that are good sources of essential fatty acids to the extent that they might supply about 25% of the fat calories, or 10% of the total calories We have found it difficult to increase the intake of essential fatty acids any more than this without using formula diets or specially devised foods Again, there is no good evidence that such a diet will lessen the incidence or degree of atherosclerosis, much less the prevalence of coronary artery disease

If the patient is acutely ill from one of the complications of atherosclerosis, therapy might include a very low fat diet—20% or less of the total calories from fat A formula-type diet containing a suitable vegetable oil as the sole source of fat might also be tried

Question What are unsaturated fats?

Answer The terms "saturated' and 'unsaturated apply to the fatty acids in fats Fats are combinations of glycerine and various fatty acids The latter are either "saturated" or 'unsaturated" depending on the number of double bonds in their carbon chains There are varying types of unsaturation referred to as "mono" or "poly" unsaturation Frequently, when the term "unsaturated fats" is used in discussions of this kind, one is thinking of certain "polyunsaturated fatty acids"

The fats in the American diet contain a large amount of unsaturated fatty acid, mostly in the form of oleic acid, which is monounsaturated Vegetable shortenings contain appreciable amounts of unsaturated fatty acid largely as the monounsaturated fatty acid, oleic acid The fatty acids found in cottonseed oil, soybean oil, and corn oil are mainly polyunsaturated acids, specifically the polyunsaturated acid known as linoleic acid These oils contain about 50% of this polyunsaturated acid Shortenings, margarines, and lard may contain a small amount or as much as 10 or 12% of linoleic acid The more saturated dietary fats such as butter fat, cocoa butter, coconut oil, and beef fat contain 1 to 3% linoleic acid Another source of fat in the diet is peanut butter It contains 20 to 25% linoleic acid, even if hydrogenated fat is also present to prevent separation

Conventionally, linoleic, linolenic, and arachidonic acids have been regarded as the "essential fatty acids," and all are polyunsaturated Linolenic acid is not very prevalent in any of our common edible oils Polyunsaturated acids are present in beef fat and lard and in certain marine fats and oils such as herring, cod, menhaden, salmon, and sardine Archidonic acid is present in all mammalian tissues, notably, heart, kidney, liver, and glandular tissues It is formed in the animal organism from linoleic acid, presumably by a mechanism involving vitamin B_6, and is regarded by some investigators as the functional essential fatty acid

Question Would it not be a good idea to limit the fats in the American diet to those that are polyunsaturated?

Answer We are not yet ready to point to one or two kinds of fats as being beneficial in the prevention of atherosclerosis By the same token one cannot point to certain fats as being harmful We are not talking about diets for specific patients Little work has been done on the effect of different types of fat in the normal diet over long periods of time As a result, we do not know whether a change in cholesterol level of any significant proportion could be obtained in the American population by dietary means This is an important point to establish, and large-scale controlled studies should be undertaken to answer this question

Question Is it possible that a diet high in polyunsaturated fatty acids could cause any ill effects?

Answer Any drastic changes in the accustomed diet could lead to unforeseen metabolic disturbances—a good reason to always be careful about recommending drastic changes in the diet until an abundance of convincing evidence is available on all points involved

Actually, there is some evidence from animal studies that a high intake of polyunsaturated fatty acids may deplete stores of vitamin E

Question Where does the cholesterol go when the total cholesterol level is reduced in the serum by various dietary means?

Answer Some animal studies suggest that body tissues other than blood are also decreased in cholesterol content There is no evidence that cholesterol in leaving the blood is increased in any body tissues Presumably, it is excreted, but certainly this point is not established

Question We hear much about the Bantu and his low-fat diet, how low in fats are these diets, and is this the major difference from American diets?

Answer Bantu diets, as well as diets from other peoples of the world, vary A R P Walker, of Johannesburg, who has probably studied the diet of the Bantu as carefully as anyone, states that they average 40 Gm of fat per day, providing 15% of the total calories More than half of this fat is 'hidden,' being contained in legumes and in the lightly milled cereal products that generally supply 50 to 90% of the calories These comments apply primarily to rural groups

There certainly are many differences other than fat in these diets Generally the Bantu-type diets are also low in animal protein and sucrose and high in fiber and starch, and the vitamin and mineral content may differ appreciably from American diets It is possible, and likely, that dietary differences other than fat may be involved in the problem of atherosclerosis and its complications

Question Is the intake of vitamin B$_6$ and protein important in planning a diet for a patient with atherosclerosis?

Answer So far as is known, any well-balanced diet will supply adequate amounts of vitamin B$_6$ and of protein, including good quality protein Protein quality and vitamin B$_6$ have come into the picture mainly because of experimental studies with monkeys and rats They have little specific clinical significance with regard to this problem in man as of today The same might be said for niacin Conceivably, diets high in linoleic acid may increase our need for vitamin B$_6$ Very-low-protein diets, as, for example, the "rice diet" which furnishes only 20-30 Gm of protein, usually causes a decrease in the serum total cholesterol level Whether this is because of the loss in weight that generally takes place on such a diet or because such diets are low in fat as well as in protein is not known

Question Is diet therapy the most important item in treating a patient for coronary artery disease?

Answer After the acute phase of the illness is over, diet therapy is certainly important Probably the greatest value of nutritional research in this area lies in the potential it holds for possible prevention or mitigation of this disease by dietary measures

Question Is there evidence that small quantities of unsaturated vegetable oils, particularly corn oil, can be added with profit to a diet containing a moderate amount of animal fat?

Answer There is little evidence that small amounts of corn oil added to a diet of ordinary foods containing moderate amounts of animal fat will result in a lowering of the cholesterol level, and there is absolutely no evidence that it will affect the regression of atherosclerosis or lessen the likelihood of the development of coronary artery disease

Question Although the common vegetable oils rich in linoleic acid may be hypocholesteremic, are they also thrombogenic' because they tend to neutralize the heparin-like substances in the blood?

Answer We know of no evidence that these oils are "thrombogenic' It has been reported that under certain conditions blood clotting is somewhat accelerated for a few hours after the ingestion of a meal rich in fat, regardless of the type of fat

Question Can you provide a week's menus of a diet that approximates 2,200 calories per day and in which about 30% of the calories are furnished by fat?

Answer A reduction of the fat to 30% of the calories represents a decrease of about one-fourth in the typical American diet The populations in some parts of the world where the incidence of coronary artery disease is very low receive only 10 to 15% of their calories from fat Reducing fat calories to 30% in the American diet, without a proportional increase in calories from other sources, should result in a decrease in the incidence of obesity and thus improve health from many viewpoints, perhaps including that of coronary artery disease However, this latter point is by no means proven The following menus assume small to average servings and no second helpings This is important, most important!

They average 70 Gm of fat, 90 Gm of protein, and 300 Gm of carbohydrate They supply adequate amounts of vitamins and minerals for average adults In calculating diets, one must take into account the small amounts of fat provided by bread and other constituents of the diet relatively low in fat No gravy is used, as it is almost impossible to estimate the fat content This means that pan gravy or whatever comes off steak or roast during the cooking, as well as thickened gravy or sauces, are not included in the menus Meat is trimmed of all visible fat before being served No foods are fried, but very small amouts of fat may be allowed to prevent sticking and dryness With careful planning, a small amount of butter or fat can be used, but generally not more than 3 pats of butter or other fat a day Vinegar, lemon, onion juice, spices, and herbs may help season vegetables and meats Salads of greens, tomatoes, and fruits may be on the menu for any lunch or dinner, and if a dressing is desired it should be one of oil and vinegar and used sparingly One teaspoon of sugar and one teaspoon of whole milk may be added to each cup of coffee or tea as desired Snacks are included, and, if a bedtime snack is desired, it is suggested that those who are reducing or having trouble maintaining their weight save their dessert for this snack

These menus will provide about 30% of their calories as fat If it is desired to increase the proportion of essential fatty acids in the diet and still keep the fat at 30% or less, skim milk can be substituted for whole milk, and more generous use of lean and low-fat meats such as veal, chicken and turkey, and fish can be allowed In addition to being relatively low in fat, these latter three foods also contain more of the essential fatty acids than most meats Jellies, jams, and cottage cheese may be used as spreads on bread

One Week s Menus of Diet that Approximates 2,200 Calories Daily and in Which About 30% of Calories are Furnished by Fat

Day 1

Breakfast
Prunes ¼ cup
Poached egg
Toast 2 slices
Butter 1 pat
Jelly 1 tbsp
Coffee or tea

Lunch or Supper
Grape juice cocktail 4 oz
Shrimp salad (½ cup shrimp 3 tbsp boiled dressing lettuce seasoning)
Melba toast 2 slices
Jam 1 tbsp
Pineapple sherbet (water)
Milk 1 cup
Tea or coffee

Dinner
Roast beef 4 oz
Boiled potato 1 medium
Peas 1 serving
Tomato aspic salad
Roll 1
Butter 1 pat
Angel cake 1 serving
Apricots 1 serving
Coffee or tea

Between Meal Snacks
Choice of one
Soft drink 1
Fruit juice 1 serving
Milk 1 cup
4 crackers or 2 plain cookies

Day 2

Breakfast
Orange juice 4 oz
Cereal 1 serving
Milk 1 cup
Toast 1 slice
Jelly 1 tbsp
Coffee or tea

Lunch or Supper
Bouillon
Cold roast beef sandwich with mustard
Sliced tomato
Strawberry shortcake (biscuit and berries)
Milk 1 cup
Coffee or tea

Dinner
Tomato juice cocktail
Broiled halibut 1 pat butter (for cooking)
Parsley potato
Butter 1 pat
French style green beans 1 serving
Grapefruit and orange salad
Roll 1
Jelly 1 tbsp
Jello
Tea or coffee

Between Meal Snacks
Choice of one
Soft drink 1
Fruit juice 1 serving
Milk 1 cup
4 crackers or 2 plain cookies

Day 3

Breakfast
Grapefruit juice 4 oz
Cereal 1 serving
Blueberry muffin 1
Jam 1 tbsp
Milk 1 cup
Coffee or tea

Lunch or Supper
Fruit salad plate (pear apple grapefruit orange banana strawberry)
Cottage cheese 3 tbsp
Toast 2 slices
Butter 1 pat
Plum jam 2 tbsp
Coffee or tea

Dinner
Consomme 1 serving
Saltines 3
Lean roast leg of lamb 3 oz slice (3" x 2¾" x ⅜")
Parsley buttered potato 1 serving
Glazed curried peach ½
Brussel sprouts 1 serving
Cloverleaf rolls 2
Butter 1 pat
Jam 1 tbsp
Lime ice ½ cup
Coffee or tea

Between Meal Snack
Choice of one
Soft drink 1
Fruit juice 1 serving
Milk 1 cup
4 crackers or 2 plain cookies

Day 4

Breakfast
Orange juice ½ cup
Cereal 1 cup
Milk 1 cup
Sugar 1 tsp
Egg
Toast 1 slice
Jam 1 tbsp
Coffee or tea

Lunch or Supper
French onion soup with 4 saltines
Sardine sandwich
Tomato 1 medium stuffed with cottage cheese ¼ cup in lettuce cup
Angel cake 1 piece
Coffee or tea

Dinner
Shrimp cocktail (6 shrimp 4 tbsp sauce)
Broiled chicken ¼ medium broiler

Between Meal Snack
Choice of one
Soft drink 1
Fruit juice 1 serving

Day 4 (Continued)

Rice ¾ cup with butter 1 pat
French style green beans ½ cup seasoned with thyme green onion
Endive lettuce grapefruit salad with oil and vinegar dressing (1½ tsp oil)
Rolls 2 small
Guava jelly 2 tbsp
Fruit
Coffee or tea

Milk 1 cup
4 crackers or 2 plain cookies

Day 5

Breakfast
Sliced orange
Cereal 1 cup
Milk 1 cup
Sugar 1 tsp
Toast 1 slice
Strawberry jam 1 tbsp
Coffee or tea

Lunch or Supper
Roast veal 3 oz
Spaghetti ½ cup
Tomato sauce
Frozen peas ½ cup
Italian bread 1 slice
Jelly 1 tbsp
Peaches ¼ cup
Milk 1 cup
Coffee or tea

Dinner
Lean baked pork loin 4 oz seasoned with mustard Worcestershire sauce
Baked potato 1 medium with 1 tbsp sour cream and chives
Broccoli ½ cup
Lettuce salad with vinegar
Small roll 1
Marmalade 1 tbsp
Lemon chiffon pie 1 serving
Coffee or tea

Between Meal Snack
Choice of one
Soft drink 1
Fruit juice 1 serving
Milk 1 cup
4 crackers or 2 plain cookies

Day 6

Breakfast
Grapefruit ½
Soft cooked egg 1
Whole wheat toast 2 slices
Strawberry jam 1 tbsp
Coffee or tea

Lunch or Supper
Breast of chicken ¼ of large
Mushroom caps on toast triangles (oil 2 tsp for cooking)
Broccoli with lemon
Celery hearts and radishes
Sponge cake
Milk 1 cup
Coffee or tea

Dinner
Tomato bouillon
Saltines 2
Roast beef 4 oz
Baked potato
Butter 1 pat
Squash
Tossed salad with lemon juice
Parkerhouse roll jelly
Meringue filled with cherries
Coffee or tea

Between Meal Snack
Choice of one
Soft drink 1
Fruit juice 1 serving
Milk 1 cup
4 crackers or 2 plain cookies

Day 7

Breakfast
Large grapefruit ½
Poached egg
Toast 2 slices
Jam 2 tbsp
Coffee or tea

Lunch or Supper
Tomato juice cocktail 4 oz
Saltines 2
Toasted turkey sandwich
Sweet pickles 2 small
Radishes 2
Celery hearts
Fruit
Milk 1 cup
Coffee or tea

Dinner
Jellied consomme
Saltines 4
Broiled swordfish 4 oz with lemon wedge
Parslied buttered potato 1 medium with 1 pat butter
Asparagus 1 serving
Mixed green salad with 1 tbsp sour cream dressing
Rolls 2 small
Honey 2 tbsp (or 2 tbsp jam or marmalade)
Melon balls ⅔ cup
Coffee or tea

Between Meal Snack
Choice of one
Soft drink 1
Fruit juice 1 serving
Milk 1 cup
4 crackers or 2 plain cookies

This reduction of the more saturated fats permits greater use of cottonseed, corn, and soya oils in salad dressings and cooking and the use of peanut butter as a spread, without increasing the fat beyond 30% of the caloric intake

Summary

All of the current excitement over dietary fat and atherosclerosis is over the results of relatively limited studies These include the experimental production of atherosclerosis in animals, short-term studies of changes in blood lipids on persons generally on formula diets, and epidemiologic and statistical studies done as well as can be done but about which there are some misgivings While these are stimulating advances in research and may be good clues, they may not be entirely relevant to coronary thrombosis, the leading cause of death among adults in this and many other countries

Although most epidemiologists would agree that the differing incidences of coronary artery disease in various population groups is related to a differing mode of life, it has not been conclusively established that dietary factors, and specifically total fat intake, are of primary etiological importance

There is no doubt that patients transferred from a self-selected diet to a purified formula-type diet high in linoleic acid will usually display a decrease in serum cholesterol level This apparently is sustained for as long as the formula diet is fed However, experience with such formula diets, although accumulating rapidly, *still must be considered limited*, both in numbers of subjects studied and in duration Further, these formula diets are not of practical importance for the public at large Interestingly, those that have been most effective have not been low in fat—rather, they have been high in fat

Little information is available concerning the supplementation of ordinary American diets with oils rich in essential fatty acids In the light of current information it does not seem justified to recommend drastic changes in either quantity or type of fat in the diet of the general population on the assumption that such changes will lessen the incidence of coronary artery disease However we should remain alert to the possibility that appropriate recommendations may be desirable at some future time

In general, adults who are not overweight, without any family history of early death from heart disease, and with relatively low levels of serum cholesterol (in the range of 175 225 mg per 100 cc) need make no changes in their diet assuming they already consume a variety of foods providing a well-balanced diet Obese individuals with cholesterol levels that are not elevated might well reduce their body fat content on any type of well-balanced diet Obese individuals and nonobese individuals with consistently elevated cholesterol levels have somewhat more reason to attempt to lower them, particularly if there is a family history of early death from cardiovascular disease Individuals who have had a "coronary are really in the class of "sick patients," and recommendations for them should be on an individual basis and should come only from their doctor

What are the dietary changes that can be tried by individuals who may fit into some of the above categories, that is, individuals who may be particularly susceptible to coronary artery disease? First, weight loss on any type of a well-balanced diet, that is, 'cutting down, not cutting out' with regard to food intake Second, reduction of the calories derived from fat so that fat provides 25 to 30% of the calories rather than the customary 40 to 45% Third, either of the above procedures but with a definite attempt to substitute for the saturated fats in the diet—butter, whole milk, some meat fats, and perhaps margarines and vegetable shortenings—those unsaturated fats that are good sources of the essential fatty acids, particularly linoleic acid Fourth, a diet of our usual fat intake, 40 to 45%, but with much of the fat rich in the essential fatty acids

Examples of common food fats high in essential fatty acids are cottonseed oil, corn oil, soya oil, and various nut oils The oils and fat of some fish, such as herring, menhaden, salmon, sardine, and cod, are good sources of polyunsaturated fatty acids but are not common in the American diet

Margarines and vegetable shortenings contain some linoleic acid They also contain some isomers of linoleic acid There is little evidence, however, that these isomers act as antilinoleic compounds, particularly with regard to cholesteremia Far more research needs to be done with these substances, as well as with other fats, and their relation to the problem of atherosclerosis Mention may also be made of the possibilities of increasing the linoleic acid content of the common animal fats by including generous amounts of polyunsaturated fats in the ration of the animal The same could be said for vegetable shortenings through technical changes in their manufacture, for hydrogenation is a controllable process and, within limits, the amount of essential fatty acids can be varied

In the light of all of these developments, the physician has a real opportunity to practice good preventive medicine with regard to our leading cause of death First, to reassure the public and prevent mass hysteria for drastic changes in our dietary, and second, to guide his patients, depending on their individual status, along dietary patterns that consider advances in research

If for no other reason than the avoidance of obesity there will probably be a trend in this country to less rich diets," which means less calories in the diet Because fats are such a concentrated source of calories, a moderate reduction of fat intake will result in a generous reduction in calories Since most of us enjoy eating, there will be room' in our diets for foods of lower caloric content These foods might well be cereals and grains and their products, and vegetables and fruits—foods, incidentally that are commonly used by many groups of people thoughout the world who have a lower incidence of coronary thrombosis than we do

As a final word, we should like to affirm that nutritional researches in this important area of health are most promising and we are enthusiastic about them But, we think that such enthusiasm should be directed toward further research, to get the many answers we do not have, rather than toward suggesting changes in our accustomed diets, when we are not too sure at this time if, or how, they should be changed

The researches referred to in this paper that were done at the Department of Nutrition, Harvard School of Public Health have been supported in part by a series of grants from the National Institutes of Health, the Albert and Mary Lasker Foundation, the John A Hartford Memorial Fund, the Nutrition Foundation, and the Fund for Research and Teaching of the Department of Nutrition, Harvard School of Public Health

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HYPOPHYSIAL GROWTH HORMONE

Recent reports on the chemical properties and physiological action of growth hormone preparations made from human or monkey pituitary glands provide striking evidence that the apparent ineffectiveness of growth hormone preparations of bovine or porcine origin in primates may be due to chemical differences in growth hormone derived from various species

Acromegaly was shown to be associated with enlargement of the pituitary gland by Minkowski in 1887, and by 1909 a number of investigators had shown that hypophysectomy in animals led to a retardation of growth [1] More convincing evidence of the existence of a pituitary growth factor was forthcoming, in 1921, when Evans and Long [2] injected saline extracts of ox anterior pituitary glands into rats and found they increased in weight and grew more rapidly than littermate controls Shortly thereafter, Smith [3] observed that rats that had undergone hypophysectomy would resume growth if injected with anterior lobe extracts In 1944, Li, Evans, and Simpson [4] succeeded in making a growth hormone preparation of high purity from ox anterior pituitary, and, in 1948, Wilhelmi, Fishman, and Russell [5] isolated a crystalline product with similar physicochemical characteristics Using a radically different chemical procedure, Raben and Westermeyer [6] in 1951 isolated from pig pituitaries a growth hormone preparation with solubility properties different from those of bovine growth hormone

While the physiological effects of growth hormone of bovine or porcine origin can readily be demonstrated in the smaller laboratory animals, results in man [7] and in monkeys [8] have been consistently equivocal The view that this apparent ineffectiveness might be due to chemical differences between growth hormone isolated from various species was supported by the reports of Wilhelmi [9] and of Li and Papkoff [10] Wilhelmi demonstrated chemical and physical differences between growth hormone from ox, sheep, pig, horse, and fish pituitaries and noted that growth hormone isolated from fish pituitaries was effective in fish but not in rats, while bovine extracts were effective in both fish and rats Li and Papkoff isolated growth hormone preparation from human and monkey pituitary glands and demonstrated physicochemical differences between these preparations and growth hormone preparations of bovine origin

Evidence that the chemical differences observed by Li and Papkoff and by Wilhelmi may be associated with differences in physiological activity has been presented by Knobil and co-workers [11] and by Beck and his associates [12] Knobil and co-workers isolated from monkey glands a preparation rich in growth hormone as shown by assays in rats This preparation administered to monkeys that had undergone hypophysectomy caused an elevation in fasting blood sugar level, decreases in insulin sensitivity and glucose tolerances, and repair of the costochondral junction, and returned nitrogen retention to prehypophysectomy levels Further, Beck and his associates administered to a person with dwarfism of pituitary origin, human and monkey growth hormone prepared by Raben [13] Both extracts resulted in increased weight and marked retention of nitrogen, potassium, phosphorus, and calcium, while impairment of the glucose tolerance curve was demonstrated with human but not with monkey growth hormone These studies have greatly advanced our understranding of the relationship between the chemical structure and physiological activity of growth hormone preparations

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ORGANIZATION SECTION

REPORTS ON HEALTH AGENCIES

Two recent reports, one published by a committee of the American Medical Association and the other by the National Better Business Bureau, Inc., place new emphasis on the expanding role of voluntary health agencies in the health and economy of the nation. The bureau surveyed 284 businesses constituting a cross section of American industry; its report is based on replies from 158 of the firms and on information from 26 national health agencies. The A. M. A. publication is on "Suggested Guides to Relationships Between Medical Societies and Voluntary Health Agencies." According to the bureau's poll:

—The average company contributes to twice as many national health agencies as it did five years ago.

—Nearly all national business firms are supporting these agencies through direct contributions and through United Funds and Community Chests.

—Figuring the rising number and amount of contributions to more and more such health agencies, the total cost of health services in the United States today is estimated at 13 billion dollars. This is said to cover hospital care, preventive medicine, research, food and drug regulation, sanitation, and public information.

One out of every $11 contributed to 12 of the national health agencies during their last fiscal year came directly from business—a total of $10,500,000, according to the bureau's report, and business gave another 4 million dollars indirectly through federated fund drives. More than half of the companies making direct contributions to national health agencies stated that "the effectiveness of the agency's over-all program" was the principal reason for support.

More specifically, the survey indicated that the chief motive of nearly three out of four corporations was the "relation of the cause to the need of society." Personal interests of executives, many of whom serve in individual fund drives, also was given as a significant reason. "Effect of disease on the economy" was attributed by 41 of the 158 firms figuring in the study.

In this latter connection, the report cites a "staggering" production loss from the effects of alcoholism on employees—352 million man-hours lost. The bureau's survey quotes Dr. Marvin A. Block, Chairman of the A. M. A. Committee on Alcoholism, in his estimate that chronic alcoholism in the United States directly affects 20 million people who are families of the alcoholics.

A. M. A. Committee Report

Medical societies and voluntary health agencies have mutual obligations, according to the set of "suggested guides" published this month by the American Medical Association Committee on Relationships Between Medicine and Allied Health Agencies, headed by Dr. Sidney J. Shipman of San Francisco. "Physicians and medical societies, concerned as they are with the diagnosis and treatment of disease and the promotion of health, are expected by the public to support these voluntary efforts," according to the committee statement. But it adds that, although most such agencies merit support from the profession, "the medical society, in some instances, might press for changes in policy or procedure."

The committee cautions physicians that, while they should support voluntary health agencies, they should do so "within their sphere of interest, and recognize whether their role is as official representative of the medical society, interested physician, or private citizen."

The "suggested guides" state: "Medical societies should participate and when desired give agencies advice and counsel on the medical and civic aspects of community needs. Voluntary health agencies should establish liaison with the medical society and frame their programs to conform to sound medical practice."

(A complete draft of the "Suggested Guides," as approved by the committee June 2, 1957, pending final action by the A. M. A. Board of Trustees, and as sent to medical societies last month, is published on page 1933 of this issue.)

SPECIAL COMMITTEE ON INFLUENZA

The following report has been compiled from late data furnished to the American Medical Association's Special Committee on Influenza by the Communicable Disease Center of the Public Health Service, U. S. Department of Health, Education, and Welfare. Progress reports on Asian influenza will be transmitted to the profession regularly as long as there is a possibility of an epidemic.

Harold C. Lueth, *Chairman*

CURRENT STATUS OF ASIAN INFLUENZA

Sporadic cases of influenza-like illness continue to be reported among civilian groups. Great difficulty has been encountered in gaining some quantitative measure of these cases. School absentee records are currently not available because of the summer school recess. Furthermore, influenza "listening posts" maintained by states in large industrial concerns are presently not in operation because of the season. It is hoped that methods for estimating community influenza morbidity in various areas will soon be in operation

Further outbreaks of influenza-like illness have occurred among migrant workers from Mexico in Michigan and Indiana Asian strain has been confirmed in the Michigan outbreak Influenza has also appeared in two crowded labor camps in New York state Such episodes had previously been reported from California labor camps

An explosive outbreak of influenza has caused 10 of the 12 schools in a Louisiana parish to be closed Intensive investigation of the situation is presently in progress

Impressions of increased respiratory illness have been noted from Florida, Texas, Roanoke, Va, and New Orleans Hospital personnel in a hospital located in the last-named city seem to have been particularly affected

Isolations of Asian strain have now been reported from several South American countries including Chile and Columbia Asian strain isolated in Miami had been obtained from Chilean airline crews

At present no extensive influenza outbreaks are in progress Nevertheless report of sporadic cases are increasing This appears to be a real increase for this season and not merely increased attention to febrile respiratory disease

Vaccine Information

Monovalent influenza vaccine will be available for civilian use beginning sometime in September The principle of a vaccine containing only Asian strain virus has been accepted in order to facilitate production and to provide as large a volume as possible for immunization Present requirements call for an antigenic virus mass of 200 CCA units per milliliter The six manufacturers producing vaccine will concentrate production efforts on the monovalent material By mid September it is expected that 8 million doses will have been released, half of which is earmarked for the armed forces A production goal of 60 million doses by Feb 1, 1958, is the present estimate of supply potential

Although a polyvalent preparation containing an Asian strain of virus remains the ideal vaccine, the above recommendation appears to be a necessary and reasonable expedient After one injection of influenza vaccine, antibodies are detectable in about 10 days If results are comparable with previous influenza vaccine experience, subsequent protection may be expected for the duration of the influenza "season" Antibodies may be detected in a slightly greater number of persons if a second injection is given at a three or four-week interval

No formal federal system of vaccine allocation is presently contemplated A plan of immunization priorities, however, has been suggested by the surgeon general of the Public Health Service As vaccine becomes available, priority for immunization should be given to 'those whose services are imperative for the care of the sick and to essential workers in the communication, transportation, and utility industries About 12 million doses will be needed for these groups It is hoped that they will receive the earliest supplies of vaccine in order forestall serious impairment of vital services in the event of a major influenza epidemic this fall

COUNCIL ON MEDICAL SERVICE

THE OLDSTER AND HIS DOCTOR

Wingate M Johnson, M D, Winston Salem, N C

This is the first of a series of papers on various aspects of aging Each paper has been prepared for the Committee on Aging by an authority in the field When completed, the series will be published in booklet form

In medical practice at its best, no one factor is more important than the proper relation between doctor and patient This factor assumes particular significance in dealing with older patients So much of pediatric practice consists of giving routine immunizations, recording weights and measurements, and prescribing formulas for various ages that a well trained nurse can take over a great many of the pediatrician's duties The doctor can usually stay in the youngster's good graces by giving him a lollipop or bright piece of cardboard after the nurse has done the dirty work of puncturing his skin

The oldster, however, is not so easily managed The years have taught him caution in bestowing his confidence, and his diseases are apt to be of a chronic or recurrent nature A satisfactory relation with his doctor is most important to the patient's well-being and peace of mind Such a relation is most often one that has developed over many years The advice of a doctor who is himself well matured is often more acceptable to the elderly patient than is that of a younger man It is

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Professor of Clinical Medicine and Director of the Private Diagnostic Clinic Bowman-Gray School of Medicine of Wake Forest College

Members of the Committee on Aging are Drs H B Mulholland, Chairman, Charlottesville, Va Edward L Bortz Philadelphia, Henry A Holle, Austin, Texas, Wingate M Johnson, Winston-Salem, N C, Theodore G Klumpp, New York, Frederick C Swartz, Lansing, Mich and Cecil Wittson, Omaha Committee Staff Mr George W Cooley, Secretary, and Mr Herbert B Norton, Research Assistant frequently true, however, that a young doctor who really likes people—and no man who does not should be a family doctor or an internist—can win the confidence and even the affection of his older as well as his younger patients (Witness Rev Morgan, M D, and his favorite patient, Melissa) Whether a doctor be young or old, he will need special reserves of patience and equanimity in dealing with many of his elderly patients

Attitudes Toward Aging

The oldster s attitude toward the aging process may be resentful, resigned, or realistic The first two attitudes are hardest to deal with The resentful patient is apt to be immature in spite of his years Often he has been spoiled in childhood, accustomed to getting what he wanted by temper tantrums Later, as a parent and spouse, he—or often she—has achieved the same aim by the technique of domineering or of clinging Such individuals need understanding and a certain amount of sympathy—but not the sort of sympathy that makes them a prey to self-pity and encourages their childish resentment against life

The resigned oldster makes no effort to keep up with current events or to contribute his best efforts to worthy causes He is apt to use his age as an excuse to decline invitations to participate in social or community affairs He is quite willing to accept financial support as a debt owed by the government or his children Such people need to be encouraged to find something useful to do and to maintain an interest in living

The realistic person accepts aging as a natural phenomenon and looks for the good in it as well as for the bad He learns, without adopting a "Pollyanna" attitude (familiar to the older generation), that old age has its compensations Some of these will be pointed out later

The doctor who deals with many older patients will learn to recognize their reactions to age and will often be able to help them develop the right attitude In order to win their confidence, he will need to be sympathetic, sincere, and sensible His sympathy should be of the practical sort which does not expend its force in pitying the patient but which looks for means to relieve his doubts and fears He will need, to use a modern term, empathy as well as sympathy

His sincerity should be so evident that he will not need to proclaim it with a trumpet The oldster instinctively senses the doctor's attitude If it be patronizing or impatient, the patient will almost certainly withdraw into his shell It is necessary to make him feel that, for the time, he has the doctor's undivided attention

The older patient also wants his doctor to be sensible in discussing his problems whether they be physical, mental, or even spiritual He will resent evasive answers or sugar-coated reassurance that all is well when he knows that all is not well The average intelligent oldster appreciates a clear explanation of such conditions as hypertrophic arthritis and angina pectoris or even of a small cerebral thrombosis It is important, however, for the doctor to select his words with care, avoiding such dread terms as "hardened arteries, cancer, and "stroke " Thewlis[1] has given an excellent discussion of the proper use of words in his classic work The Care of the Aged,' under the section entitled Logotherapy

The doctor himself should look for the good things about maturity and help the oldster to appreciate them Among these are the relative rarity of rheumatoid arthritis or rheumatic fever, freedom from migraine, better resistance to infectious diseases, and, for women, release from the nuisance of menstruation

The physician might also point out to his elderly patients that the material comforts of modern living, while deplored by some Spartan-minded ascetics, make living more pleasant for all ages Older people should be encouraged to accept such innovations as air conditioning, electric blankets, and oil and gas heat (to say nothing of indoor plumbing) instead of clinging to their time-honored inconveniences Not the least of the blessings of this modern age is the more sensible clothing worn by both sexes Certainly the lighter apparel adopted by men in hot weather is more conducive to a long and comfortable life than the tall hats, frock coats, and high collars which were once the hallmark of the professional man By adapting his own wearing apparel to sensible modern styles, the physician who has the respect and confidence of his older patients may influence them to place comfort over custom in the matter of clothes

Physical Aspects of Geriatric Practice

Geriatrics might be given the same definition as pediatrics— general practice with an age limit ' It is doubtful, however, that many medical men will ever label themselves as geriatricians and limit their practice exclusively to older patients To do so would largely defeat the purpose of geriatrics, which is concerned as much with preventing the ravages of age as with treating them Preparation for age should begin in the prime of life, and to this end every general practitioner and internist should try to train his middle-aged and even his younger patients to cultivate proper habits of eating, sleeping, exercise, recreation, work, and mental hygiene

All men and women past middle age should be encouraged to let their birthdays remind them that it is time for another complete physical examination On a patient's first visit for such a health inventory, sufficient time should be allowed for a careful history and physical examination The history should not only include a recital of the presenting symptoms and an adequate system review but should go into the patient s living and working conditions, his habits, and his attitude toward his family and associates as well as theirs toward him Subsequent appointments can be made much shorter, since it will be necessary only to fill in the gaps between visits On the first examination a chest x-ray and an electrocardiogram should be made for a permanent record but these need not be repeated on subsequent visits unless some indication arises

The interview should conclude with detailed advice about diet, exercise, and sleep, and possibly about the patient s relations with his family and associates One of the most important bits of advice that can be given most patients at middle age or beyond is to keep their weight at its optimum level It might be wise to caution the patient that a favorable health inventory does not guarantee a full year of untroubled operation for the human machine He should be encouraged to come back between annual visits if any marked departure from his normal status occurs

Psychological Aspects of Geriatric Practice

One of the most important services the doctor can render the oldster is to help him make the necessary psychological adjustments to aging Many of the most unpleasant traits of adolescence and old age have a common basis—the desire to belong As Stuart Chase said in 'The Road We Are Traveling," Men want to feel that they are a part of a living community, that they have a place in it which other people recognize" The adolescent wants to achieve recognition as a useful member of society, the oldster wants to retain that recognition The doctor can help the oldster's morale by showing a genuine interest in him and in his environment

One of the greatest problems the aging person must face is that of retirement It is not surprising that many men who are forced to retire from their lifelong occupations while still vigorous and alert become victims of mental depression The doctor who is himself able to keep at work when long past the customary retirement age should not be blind to the fact that relatively few of his nonprofessional contemporaries are so fortunate As a citizen, the doctor should use his influence to protest the arbitrary custom of requiring a man to give up his work at a fixed age, regardless of his physical and mental fitness As a physician, however, he must help his older patients meet the changes in their lives which retirement brings

Often associated with retirement is the problem of financial dependence and the prospect of widowhood and physical disability Whenever feasible, it is usually best for members of the older generation to live apart from the families of their children or grandchildren—either in their own homes, apartments, or rooms, or in the homes and hotels which are becoming recognized as a necessity for older people in modern society If it is actually necessary for a family to take an elderly relative into the home, it is best to have a distinct understanding at the very beginning concerning the division of responsibility and authority He—or she—should not be allowed to become a petty tyrant nor be made to feel helpless by too much attention For his own sake, it is best to allow him to do as much as possible for himself and for others Here, again, the doctor who has gained the confidence of his oldster patient is in a better strategic position to talk frankly with him about his relations with his younger relatives and possibly to suggest the advisability of living in his own quarters

It is the doctor's privilege as well as his duty to help his older patients make the best possible adjustment to their advancing years In this task he has the assistance of Nature's beneficent provision for changing one's viewpoint with advancing years Except at the climacteric, adjustments to increasing age levels are usually made so gradually as to be almost imperceptible

Some years ago I formulated seven "rules of conduct" for my own use and have found that some or all of them could be used to advantage in helping my oldster patients and friends to grow old with a reasonable degree of complacency These rules—or suggestions—are as follows

1 Recognize that the mind should be at its best when a person is about 40 years old and should continue to be efficient to the age of 70 or more The pathologists have shown that organic changes in the brain do not necessarily parallel mental changes The mind which is properly trained does not lose its elasticity, and constant use of the brain helps to keep it efficient

2 Avoid becoming an 'old fogy by frequent association with young people Prepare for occasional shocks, but try to understand their viewpoint

3 Learn to delegate authority and to unload responsibility upon younger shoulders There is an advantage in partnerships in which the enthusiasm of youth is balanced by the judgment of maturity

4 Cultivate wide interests Learn new uses for the hands and brain, and exchange more strenuous amusements for others less arduous As A C Benson[2] has said, "One ought to grow older in a tranquil and appropriate way to be perfectly contented with one's time of life amusements and pursuits ought to alter naturally and easily, and not be regretfully abandoned'

5 Keep in touch with old friends and make new ones Dr Samuel Johnson once said, 'If a man does not make new acquaintances as he advances through life he will soon find himself alone A man sir, should keep his friendship in a constant repair"

6 Cultivate equanimity—the mental poise that keeps one from being unduly elated by good fortune or depressed by bad news and that teaches one to take fortune's buffets and rewards with equal thanks[3] It is important to keep a proper balance between emotion, which furnishes the driving power for the human machine, and reason, which corresponds to the steering gear and the brakes

7 Cultivate the habit of looking forward rather than backward This advice may seem to conflict with Osler's admonition to live one day at a time, but it really does not Planning for tomorrow is often part of today's task, but sighing over yesterday accomplishes nothing

Finally, since personal experience is always more convincing than mere theorizing, let me offer the testimony of two philosophers who lived centuries apart More than 2,000 years ago Plato[4] quoted the reply of the aged Cephalus to the question, "Is life harder towards the end, or what report do you give of it?' "Old age has a great sense of calm and freedom, when the passions relax their hold, then we are freed not of one mad master only, but of many He who is of a calm and happy nature will hardly feel the pressure of age, but to him who is of an opposite disposition youth and age are equally a burden"

The other philosopher is Dr Francis M Pottenger,[5] who in the final chapter of his autobiography, published in 1952, said "My 80 years do not worry me To be sure, I would like again to have the keenness of youth On the other hand, I would miss the mellowness of age, the store of experience which guides me in my every movement and act I have tried not to live too much in the past, but to be alert to the problems of the future This I have accepted as an antidote to aging It does not prevent the years from rolling by but it does prevent that fear of the future which otherwise might make one unhappy in the twilight of life ”

Summary

To most patients, a happy relationship with a good doctor is more important in the later than in the earlier years of life Since preparation for old age should begin in the prime of life, it is desirable that this relationship be established early in senescence Maturity in the doctor offers some advantages, although it is not essential if he is really interested in the problems of older patients and genuinely likes people

The attitude of the oldster toward the aging process may be resentful, resigned, or realistic The doctor can help to foster the correct attitude in his aging patients by being sympathetic, sincere, and sensible He should be interested not only in the oldster's physical condition but in his environment his interests, and his emotional status The doctor needs to be truly the oldster s guide, philosopher, and friend

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MEDICINE AND THE LAW

MEDICAL-LEGAL COOPERATION

Charles S Rhyne, Washington, D C

Both of our professions are faced with tremendous problems and almost immeasurable duties and responsibilities from the great new scientific, economic, and social changes of our day These great changes have created new tasks for us which exceed in magnitude all that we have thus far known They present a tremendous challenge and grave responsibilities for us all Communications have shrunk nations to neighborhoods We live in a physically indivisible world International affairs control our domestic planning more and more The seemingly constant international crisis overhangs us all in everything we do Such is the world in which we live Such is the picture against which we must plan together to do those things we should do jointly

It takes no great imagination to appreciate some of the fields of endeavor that challenge our joint initiative in this era of change One has only to lift up his eyes and mind from his patients and clients and participate in the day-to-day affairs of our social and political life to know that there are many problems in our rapidly changing world which we can help solve together I pass over the new and challenging problems out on the frontiers of these new developments to mention only three—three that have been with us for some years now but to the solution of which I believe our professions can make a major contribution These are juvenile crime, mental illness, and alcoholism

Juvenile Crime

We are witnessing a tragic increase in the growth of juvenile crime throughout the nation In refusing to dignify this matter as juvenile delinquency, I deliberately consider the federal and state reports showing an alarming increase in serious crimes of youth from all strata of our society Unless this trend is reversed we could witness a problem that could rot and destroy the very substance of our democracy

In many instances, we all know, punishing youngsters as adults only results in developing more hardened criminals ready to prey on society when their initial term at reform school is completed On the other hand, it is sickening to see violent crimes of youth treated by some judges as minute and unmeaningful things dismissed with mild and meaningless warnings I am certain that many ramifications of this whole matter lie squarely within the province of responsibility of the bench and bar We are charged with the duty of writing and enforcing the laws We also have the duty of studying and analyzing the law to recommend improvement in it so as to meet and solve the new and developing social problems I am not certain we have fully met our responsibility with this problem But I believe this is a medical problem also—possibly not in the cut and bruise division, but certainly within that province of medical knowledge that deals with the mind and with the matters of a person's adjustment to his social environment Medicine can inform us how to treat youthful offenders, how to ferret out those who are in need of help, how to properly rehabilitate those in need of guidance Through the science of medicine we can be given insight into the proper legal cure to combat this great

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President-elect American Bar Association

Read before the House of Delegates at the 106th Annual Meeting of the American Medical Association, New York, June 3, 1957 national problem I think maybe both our professions have been somewhat lax in assuming our responsibilities We need to press upon the authorities our peculiar abilities in this field and demonstrate to them the possible contributions we can make

Mental Illness

Mental illness is another problem we must lick together In my own community, the District of Columbia, over 3,000 mental cases were admitted to the District of Columbia General Hospital alone in 1956, over 5,000 was the average daily census of District patients at St Elizabeths Hospital in the same year, and over 10,000 school children were adjudged at the same time to be suffering from some form of emotional disorder How do we reach these people, how can society govern their conduct to make them profitable to themselves and others, and how are they to be cured—these are your responsibilities, and they are mine

Recently our Court of Appeals held that a man had a constitutional privilege to be represented by a lawyer at a mental committing inquest Prior to this decision it was customary to proceed without the presence of an attorney We all recognize the burden that this is apt to place upon commitment procedure, but I am sure you will agree that a man has as much right to his lawyer in these proceedings as he does in a court of law It would be vastly unfair, almost cruel, to permit confinement of this nature in a procedure devoid of the protection of legal rights

This court decision will necessarily call for a greater degree of cooperation, study, and understanding by the attorney and the physician in the District of Columbia I am hoping that the local chapters of our organizations will be able to effect a program of mutual cooperation and help so that we will be able to work effectively together We can anticipate an even greater interest in this field in years to come As our knowledge expands, as our problems increase, as our duties become more clear, we shall need each other more and more, and I am hopeful that we will be able to work together on a solution for this awesome problem

Alcoholism

And lastly, let me mention briefly the problem of alcoholism—a social, medical, and legal problem not confined to the District of Columbia alone, I am assured We all recognize that our laws are antiquated and presently ineffective to meet the increasing burden of this challenge Clearly the present policy of "keeping them off the streets" and giving chronic alcoholics short ineffective prison terms hardly faces the problem at all and certainly does not solve it And the result is a great increase in the incidence of crime due in part to alcohol, broken homes, and drunken and reckless driving resulting often in needless slaughter, these are just examples of the results of this illness They do emphasize the staggering proportions of the problem and the really frightful alternative facing us Either the law recognizes a different approach or we shall continue as we are in a situation not satisfactory to anyone If there is a medical solution then we should proceed full speed to its discovery I feel probably the answer lies somewhere between, partly revamping the legal attitudes and partly a redeveloping of medical understanding and treatment But we accomplish little by talking about it We must do something and it is clear, at least it is clear to me, that we must do something together

Joint Undertakings

I think the first step must be taken on the local level I think the leaders of the bar associations and the medical associations in each community across this nation must take greater steps to work out more effectual programs for joint undertakings Good laws can only be made through a proper understanding of all the aspects of the problem In the three problems I have noted, the medical aspect is of great importance, but unless an avenue be found for the lawyer, the judge, and the legislator to hear you, to understand you, and to welcome your advice and recommendations, they will necessarily proceed without the benefit of your knowledge This would be tragic It is a tragedy that has occurred before, but must not occur again

Let me conclude by expressing my appreciation of the fine work that we have been able to accomplish together so far on the Jenkins-Keogh self-employment retirement income legislation We have enjoyed working on this bill with Dr James R Reuling, the Chairman of your Committee on Legislation, and believe that there is excellent chance to secure passage of this legislation

This noon I had the privilege of witnessing the premiere showing of the second movie in the series "Medicine and the Law, created through the joint efforts of our two associations The title of this latest film is "The Doctor Defendant " The very favorable reception of the first film, "The Medical Witness," was most encouraging We feel sure that the series of six films will be a major contribution toward improving medical-legal cooperation in a most vital area of our relationships We are all indebted to the W S Merrell Company for making these films possible

We wish to express our appreciation to C Joseph Stetler, Director of your Law Department, for his excellent cooperation in the making of these films and upon the whole of the newly inaugurated program of cooperation between our professions The medicolegal committees of our two associations are exploring all possible areas for cooperation I am sure much benefit will come to both of our professions from this joint endeavor

Medicine and law, while at times a mystery one to the other, are in effect inseparable instrumentalities bound together Together we can constitute strength in the progress of our democracy Working together we can meet the challenge that is ours in our changed and changing world I assure you that we in the legal profession stand ready to work with you in every possible way for the advancement of the welfare of the people of our nation and of the people of the world

COMMITTEE ON RELATIONSHIPS BETWEEN MEDICINE AND ALLIED HEALTH AGENCIES

SUGGESTED GUIDES TO RELATIONSHIPS BETWEEN MEDICAL SOCIETIES AND VOLUNTARY HEALTH AGENCIES

The following committee report was approved June 2, 1957, pending final action by the Board of Trustees Copies of this draft have been sent to state and county medical societies for comment

GEORGE COOLEY, *Committee Secretary*

Voluntary health agencies are an American institution They have developed with the past half-century Starting with the National Tuberculosis Association in 1904, the agencies at the national, state, and local level, devoted wholly or in part to health promotion, are now numbered in the hundreds

Physicians and medical societies, concerned as they are with the diagnosis and treatment of disease and the promotion of health, are expected by the public to support these many voluntary efforts Each agency strives for medical approval and wants to count physicians among its members

Nature of Voluntary Health Agencies

Agencies concerned with health vary widely in organization, objectives, means for attaining objectives, fund raising methods, membership, and relationship of groups at national, state, and local levels However, even with these variations, not infrequently, their likenesses are more notable than their differences Their principal characteristics are (1) a voluntary, nongovernmental association of citizens, with (2) a common goal or interest, usually the prevention and control of some disease or infirmity, which (3) gathers voluntary contributions, gifts, memorials, and memberships, and (4) expends its resources in ways decided by the governing body of the agency, most often for public and professional education, medical and basic science research, and in a number of instances the underwriting of medical care

The kinds of community agencies interested in health, including the voluntary health agency, can be classified into the following types

1 The local subsidiary of a national agency concerned with a single disease condition which uses its funds primarily for health education of the public, possibly for research and, in some instances, to provide medical care Examples of such organizations are the National Tuberculosis Association, the American Cancer Society, and the National Foundation for Infantile Paralysis

2 The local subsidiaries of national agencies concerned with a certain group of people having common problems which may be the result of a variety of related diseases Among these are such agencies as the National Society for Crippled Children and Adults and the National Association for Mental Health

3 Local subsidiaries of national organizations whose primary interest is civic betterment but who from time to time become interested in preventive medicine or provide medical care for specific short-term problems Among these are the national civic organizations such as Rotary, Lions, and Kiwanis, business groups such as the Chamber of Commerce, academic fraternities and sororities, and women's organizations

4 Locally organized groups, which may or may not be affiliated with a national program or agency, such as the auxiliary groups supporting local hospitals or clinics, infant welfare societies, local health councils, and social agencies in the fields of family welfare, adoptive placements, family counseling, and various youth activities

5 Community coordinating groups such as welfare councils, health councils, and community chests and similar groups engaged in community planning, in administrative research, and in the distribution of money gathered through federated giving

The larger and better known voluntary health agencies have now become an accepted part of our culture They have made available contributions to education and research Many of the smaller, more recently developed agencies are equally reliable and at least as valuable However, even though these agencies have medical direction at the national and state level and are accepted by the medical associations at these levels, an effort must be made toward mutual understanding at the local level, including medical direction

Voluntary Agency Evaluation

The medical society is dedicated to maintenance of health in the communities its members serve It, therefore, has an interest in and an implied responsibility for citizen groups who profess a similar dedication Any agency that collects dues and contributions so that it may conduct health education, research, and service for the prevention of disease and the rehabilitation of the crippled, therefore, becomes an object for medical society consideration

The medical society approach to any agency should be friendly, since these agencies intend to promote health through support of sound medical practice It should also be constructively critical, since occasionally uninformed enthusiasts can make mistakes which distort even well-planned policy The evaluation that a local medical society makes of a local voluntary agency must answer at least the following questions 1 What relation does the local voluntary agency have to a similar state or national agency? Is it a subsidiary chapter, affiliate, or independent competitor? 2 Why was it started in this community? Who started it and what interests are promoting it? 3 Are the purposes and stated objectives of the agency desirable, in conformity with those of the parent agency, medically justifiable, and possible of attainment by the program proposed by the agency? 4 Does the agency respect local customs for collecting money in the drive for memberships and contributions? 5 Is the fund goal realistic when related to community needs and the anticipated over-all program of the agency at the local, state, and national levels? 6 Is the cost of fund raising and administration comparable to similar expenses of other agencies in the community and reasonable in relation to expenditures for the stated objectives? 7 Are the educational and promotional materials medically correct, ethically presented, in good taste, and educationally sound? 8 Can the expenditures allocated for research be justified by local disease problems as well as by national research needs? 9 How are expenditures for service related to local needs for such service and to the established community programs for medical care?

Medical Society Obligation to Voluntary Agencies

Most voluntary health agencies warrant medical society participation and support of their policies In the interests of enlisting public support for the promotion of health, medical societies have an obligation to help agencies conform to good practice Most voluntary health agencies would be more susceptible to modification of their practices by participation, support, and advice from the county medical society than to adverse criticism and opposition Medical societies may offer assistance in many ways, among which are to (1) arrange liaison by making available medical society representation on the governing board of the voluntary health agency, (2) make available an advisory service to the agency on policy and practice decisions that involve matters relating to medicine or physicians, (3) cooperate with the agency in planning its program in relation to community health needs and evaluation of how well these needs are being met, and (4) encourage medical society members to stimulate public support of the agency and its program

Voluntary Agency Obligation to the Medical Society

Every voluntary health agency, or organization concerned with matters of medical care and health promotion, has certain obligations to the community in which it operates and to the physicians and their medical society who provide the health service in that community To enjoy the confidence of the medical society and merit its continuing support, voluntary health agencies need to meet certain obligations, among which are that (1) its basic policies regarding medical care and preventive medicine should conform with the policies and practices acceptable to the medical profession in that particular community, (2) the governing board of the voluntary agency should in all instances provide an opportunity for representation of the medical profession designated by the county medical society, (3) problems involving medical policy and practice should be considered in consultation with appropriate medical society committees, and (4) the program of the agency, including the collection and disbursement of its funds, should conform to community custom and be related to the community's needs and the over-all program of the agency at the local, state, and national level

Role of Physicians in Relation to Voluntary Health Agencies

The individual physician plays four separate but related roles when he becomes affiliated with a voluntary health agency or other voluntary organization concerned with a phase of preventive medicine or medical care 1 He may be delegated as an official representative of his medical association, in which case he acts for the medical society expressing the consensus of his colleagues 2 He may be called on by an agency to serve it as a physician in ways suggested by his specific professional interest 3 Because of his interests, he may seek membership on his own accord and become active in an agency's program 4 As a private citizen interested in his community, and regardless of his profession, he may use a health agency as the medium for public service

The obligations of these roles are quite different It is therefore imperative that both the physician and the voluntary health agency he is serving recognize the particular role being played The representative of a medical society designated to serve as an official channel of communication has a different status than a private physician serving an agency as an individual A physician selected by a voluntary agency to serve on its board has no authority to speak for the local medical society unless granted that authority by action of the medical society

This point is quite confusing to agencies who are not acquainted with interagency representation Physicians who are close to interagency personnel should explain that, though physician membership on a board of directors is desirable and is to be encouraged, such members do not represent the medical society unless they have been named by the medical society as its official spokesman

All voluntary health agencies depend on membership dues and voluntary contributions They also must have the contributed time of volunteer workers interested in promoting the agency's objectives Since the community looks to physicians for endorsement of a health agency, the physician is obligated to speak well of an agency whenever possible He also will feel obligated to support with time and money those agencies in which he has personal interest

Summary

The voluntary health agency is now a recognized community function, and most agencies merit medical society support of their objectives, though the medical society, in some instances, might press for changes in policy or procedure Medical societies and voluntary health agencies have mutual obligations Medical societies should participate and when desired give agencies advice and counsel on the medical and civic aspects of community needs Voluntary health agencies should establish liaison with the medical society and frame their programs to conform to sound medical practice Physicians should support voluntary health agencies within their sphere of interest and recognize whether their role is as official representative of the medical society, interested physician, or private citizen

MEDICAL NEWS

GEORGIA

Cardiovascular Research—A grant from the National Heart Institute, U S Public Health Service, of $300,297 has been awarded to William F Hamilton, Ph D , professor of physiology, and Raymond P Ahlquist, Ph D , professor of pharmacology, University of Georgia School of Medicine, Augusta, to continue a postgraduate cardiovascular research and training program for the next six years Program trainees for the year 1957-1958 include the following Colin Fell, Ph D , Wayne University, Detroit, Dr Alceo Barrios, Faculty of Medicine, Buenos Aires, Argentina, Dr Evan Lindberg, Grace-New Haven Hospital, New Haven, Conn , Dr Ali Mehrizi, Children's Hospital, Detroit, and Charles R Wallace, D V M , Alabama Polytechnic Institute, Auburn, Ala

KENTUCKY

Society News—New officers of the Kentucky Radiological Society are Dr David N Shapiro, Louisville, president, Dr James S Rich, Lexington, vice-president, and Dr Robert H Akers, 1405 West Broadway, Louisville 3, secretary-treasurer ——The Kentucky State Medical Association has moved its headquarters office to the Medical Arts Building, 1169 Eastern Parkway, Louisville 17 The new phone number is GLendale 4-6324

Dr Dodd Appointed "Distinguished Professor of Pediatrics"—Dr Katherine Dodd has been appointed "distinguished professor of pediatrics," University of Louisville School of Medicine, effective this month Dr Dodd is retiring as chairman of the department of pediatrics, University of Arkansas, Little Rock, which she has served for the past five years Previously, Dr Dodd taught at the University of Cincinnati for 9 years after teaching pediatrics at Vanderbilt University, Nashville, Tenn , for 18 years As "distinguished professor," Dr Dodd will be free of administrative detail and able to bring to bear her experience in the teaching of clinical pediatrics on the undergraduate students and the 21 house officers of the department

MARYLAND

Appoint Chairman of Ophthalmology Department—Dr William M Hart, Bethesda, has been appointed chairman of the department of ophthalmology of the Sibley Memorial Hospital of American University Dr Hart is clinical associate professor of ophthalmology, Georgetown University, Washington, D C, and special lecturer in physiology He is also consultant in ophthalmology to Walter Reed Army Hospital Previously he was chief, department of ophthalmology at the Clinical Center, National Institutes of Health, Washington, D C

MASSACHUSETTS

Society News—The Massachusetts Society of Anesthesiologists has elected the following slate of officers president, Dr Benjamin Etsten, Boston, vice-president, Dr James H Buskirk, Cambridge, and secretary-treasurer, Dr John H Tucci, Brockton

Personal—Dr Benedict F Massell, research director, House of the Good Samaritan, assistant clinical professor at Harvard Medical School, and chief, rheumatic fever division, Children s Medical Center, Boston, has received the American Heart Association award of merit in recognition of service in advancing the association's national program to reduce death and disability from diseases of the heart and circulation

Revise Clinical Curriculum at Tufts—The *Tufts Medical Alumni Bulletin* for June reports that the faculty of Tufts College Medical School, Boston, has accepted the following revisions for the academic year 1957-1958 (1) Establishing the major inpatient clinical clerkships in medicine, surgery, and pediatrics in the third year, (2) Lengthening the clinical clerkships in medicine and surgery from 8 to 12 weeks, (3) Further reducing the number of whole class didactic lectures, (4) Inaugurating a program of seminar teaching in groups of 16 to 20 students under the immediate direction of moderators selected from the clinical faculty, and (5) Establishing a continuous 14-week elective period in the fourth year

MICHIGAN

Establish State Experimental Biology and Medicine Section—A Michigan section of the Society for Experimental Biology and Medicine has been established The following officers have been elected chairman, Dr Walter J Nungester, University of Michigan, vice-chairman, Joseph Meites, Ph D , Michigan State University, secretary-treasurer, Burton L Baker, Ph D , University of Michigan, and committeeman-at-large, Dr Conrad Lam, Henry Ford Hospital, Detroit

It is planned that the section will meet three times a year, with the location of the meetings rotating between Ann Arbor, East Lansing, and Detroit For information write Joseph Meites, Ph D , Michigan State University, East Lansing, Mich

NEW JERSEY

Winners of Hospital Contest—Dr Alfred Zettner, resident, department of pathology, Mountainside Hospital, won the contest sponsored by the hospital medical staff for members of the house staff, who were asked to submit original papers on medical subjects He received an award of $125 Dr Thomas J Degnan won second prize of $100, and Dr William V Chokas, resident, department of medicine, received third prize of $75 The title of Dr Zettner's paper was 'The Relation of the Oxygen Hemoglobin Equilibrium to the Hematocrit" Two of the winning essays have been accepted for publication in medical journals

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Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities new hospitals, education, and public health Programs should be received at least three weeks before the date of meeting

NEW YORK

Graduate Fortnight Shortened—For the past 29 years the New York Academy of Medicine has held an annual Graduate Fortnight This year the program will be contracted to a Postgraduate Week of five days, Oct 7-11, with daily evening lectures, afternoon panel meetings and a scientific exhibit The title of the 1957 postgraduate week program is "Research Contributions to Clinical Practice" The purpose of the postgraduate week is the continuing education of graduate physicians For information write Dr Robert L Craig, Secretary, Postgraduate Week Committee, New York Academy of Medicine 2 E 103rd St, New York City 29

Personal—Dr Helen E Elliott has been appointed deputy assistant commissioner of the State Department of Mental Hygiene Dr Elliott, former assistant director (clinical) at Central Islip State Hospital, will serve as assistant to Dr Henry Brill, assistant commissioner in charge of the division of research and medical services ——Dr Luigi Pellegrini is a new member of the medical staff of Eaton Laboratories, Norwich, N Y Dr Pellegrini served three years in the Army Medical Corps during the Korean War, attaining the rank of captain Before going to Norwich he was a resident physician at Fordham City Hospital, and was on the medical staff of New York City's department of correction, Riker's Island

Dr Elmer Hess Heads Selective Service Committee—Dr Elmer Hess, of Erie, recent president of the American Medical Association, has been appointed by President Eisenhower as chairman of the National Advisory Committee to Selective Service on the Selection of Physicians, Dentists and Allied Specialists He succeeds Dr Howard Rusk, of New York City, who has held the post since the committee's formation in 1950, when the doctor draft went into effect The committee advises on the induction of medical and dental officers in the armed services

Dr Hess served in the Army Medical Corps in World War I in France He has made several missions abroad for the government He left July 31 on an inspection tour of Air Force medical facilities in Europe and North Africa for the Surgeon General of the Air Force

Surgical Appointments—Drs Robert D Whitfield and William A Milner have been appointed sub-department heads in the department of surgery at Albany Medical College Dr Whitfield, an associate professor of surgery, will head the sub-department of neurosurgery Dr Milner becomes head of the sub-department of urology Both Dr Whitfield and Dr Milner had earlier served as acting heads of these sub departments Dr Whitfield is a member of the staff of many area hospitals and is a diplomate of the American Board of Neurological Surgery and a fellow of the American College of Surgeons Dr Milner, a member of the faculty at Albany Medical College since 1931, is president-elect of the northeastern section of the American Urological Association Dr Milner is a fellow of the American Board of Urology and is a consultant urologist at a number of area hospitals

Study of Retarded Persons—A grant of $120,000 to New York University for a two-year study of the factors determining the institutionalization of retarded persons has been announced The study, which begins this month, will be conducted by Gerhart Saenger, Ph D, director of the school's research center and a member of the university's psychology department The goal is to find out whether institutionalization constitutes the best possible solution for different groups of retarded persons now usually sent to institutions To obtain data that may lead to improvement in services for the retarded, a staff of 50 professional social workers attached to the research center of the Graduate School of Public Administration and Social Services will make an investigation of records of institutions, public and private social agencies, schools, and special clinics A major part of the study will consist of interviews with about 1,000 parents of retarded persons between the ages of 1 and 25 to get their reactions toward services they have received

New York City

Appoint Assistant Dean—Arthur V Jensen, Ph D, has been appointed assistant dean at New York Medical College, Flower and Fifth Avenue Hospitals Dr Jensen has been associate professor in the department of anatomy at the college for the past four years, and he will continue in that position He has been faculty member of the staffs of the following institutions Institute of Neurology of Northwestern University School of Medicine, Chicago, University of North Carolina School of Medicine, Chapel Hill, and Adelphi College, Garden City, L I, and for two years he was a member of the Committee for Post-Graduate Medical Education of the University of North Carolina

Doctor's Orchestral Society and Symphony—Physicians, dentists, and members of allied professions are invited to become members of two doctor s orchestras in New York City Nonmedical musicians may also join The Doctor's Orchestral Society of New York rehearses Thursday evenings in the auditorium of the Stuyvesant High School, 15th Street and First Avenue, at 8 30 p m The Brooklyn Doctor s Symphony meets Wednesday evenings in the auditorium of the Brooklyn High School of Home Making at 901 Classon Ave, corner of Washington Avenue, Brooklyn, at the same time Rehearsals of both groups will resume in the fall Information may be obtained from Dr Benjamin A Rosenberg, 909 President St, Brooklyn 15, N Y, NE 8-2370

Appoint Physical Medicine Administrator—Dr John L Enyart, who retired as U S Naval Surgeon, Medical Branch, Supreme Headquarters Allied Powers Europe (NATO Forces) Paris, in June, has been appointed administrator of the Institute of Physical Medicine and Rehabilitation, New York University-Bellevue Medical Center Dr Enyart served at the Royal Naval College Hospital, Dartmouth, England, in 1943-1944 He was staff surgeon Naval Forces, France, 1944-1945 and executive officer of U S Naval Hospital, Philadelphia, 1945-1946 Dr Enyart served with the National Advisory Group to Nationalist China from 1946 to 1948 and was commanding officer of the U S Naval Hospital, Newport, R I, from 1953 until his appointment to NATO

NORTH CAROLINA

Personal—Dr John H Ferguson, head, physiology department, University of North Carolina School of Medicine, Chapel Hill, has been awarded the doctor of science degree by his alma mater, the University of Cape Town South Africa It was awarded to Dr Ferguson for his research in the field of blood coagulation and hemorrhagic diseases ——Dr Edwin P Hiatt, associate professor of physiology, University of North Carolina School of Medicine, Chapel Hill, has accepted a research position as chief of the acceleration section and consultant to the biophysics branch of the Aero-Medical Laboratory at Wright-Patterson Air Force Base near Dayton, Ohio

Grant for Teaching Films—A $27,275 March of Dimes grant has been made to Duke University, Durham, to continue its production of motion pictures for teaching anatomy to medical students, occupational therapists, and other persons involved in the treatment of poliomyelitis Underway in the Medical School since 1951, the project has been supported by a series of March of Dimes grants now totaling $210,392 J E Markee, Ph D, James B Duke Professor of Anatomy and director of the project, said that the films make possible a more effective teaching program in anatomy without unduly increasing the load on teachers or the time assigned to this subject Trainees in orthopedics, pediatrics, anesthesiology, and other medical specialties also make use of the films, which are available on a loan basis for use by professional schools and associations

OHIO

Cincinnati Eye Bank—For less than a year an eye bank has been established at the Cincinnati General Hospital, closely associated with the University of Cincinnati Medical School and the Department of Ophthalmology Since its organization, more than 50 eyes have been donated and about 30 corneal graft operations performed The purposes of the eye bank are (1) to establish sources of supply of salvaged eyes, corneal tissue, and vitreous fluid and to provide the means for their collection, preparation, storage, and redistribution to hospitals and surgeons for corneal and retinal detachment operations, (2) to extend and encourage, by teaching and research, the knowledge and skill required to perform corneal graft operations, (3) to carry out research work on eye disease, particularly that resulting from corneal damage, glaucoma, and retinal detachment The eye bank is supported entirely by private donations for its over-all operation Executive director of the eye bank is Mr Benn C Budd

Academy of General Practice Meeting—The seventh annual scientific assembly of the Ohio Academy of General Practice will be held Sept 18-19 at the Franklin County Veterans Memorial, Columbus The program includes the following topics by out-of-state speakers

The Art of Treatment with Tranquilizing Drugs, Dr Frank J Ayd Jr, Baltimore
Cervical Biopsies in Office Practice, Drs Malcolm L Barnes and George S Allen, Louisville, Ky
The Allergic Patient, His Problems Office Diagnosis and Treatment (Emphasis on Bronchial Asthma), Dr Nathan E Silbert, Lynn, Mass
The Irritable Child, Dr James L Dennis, Oakland, Calif
Gynecological Disease in Adolescents and Children, Dr Edward Allen Chicago

Guest speaker at the banquet Sept 18 will be Dr Edward H Rynearson, Rochester, Minn, who will speak on Both Doctors and Patients are Human Beings " Technical exhibits are planned and a special ladies' program has been arranged For information write the Ohio Academy of General Practice, 209 South High St, Columbus 15, Ohio

OKLAHOMA

Society News—The Oklahoma Society of Anesthesiologists has elected the following officers president, Dr William B Renfrow, Oklahoma City, president-elect, Dr Carl Guild, Tulsa, and secretary-treasurer, Dr Lawrence Stream, Oklahoma City

Appoint Head of Radiology Department—Dr Gus R Ridings, formerly associate professor of radiology, University of Mississippi Medical Center, has become the first full-time head of the department of radiology at the University of Oklahoma School of Medicine, Oklahoma City His appointment now gives the school seven clinical departments with full-time directors Dr Ridings has served as instructor in radiology at the Vanderbilt Medical School, New Orleans He had also received resident training in radiology at the University of Michigan Hospitals, Ann Arbor Dr Ridings will continue his research dealing with certain bone abnormalities

PENNSYLVANIA

Personal—Dr William N Parkinson, dean, Temple University School of Medicine and vice-president of the university in charge of medical affairs, received an honorary degree of doctor of laws at the June commencement exercises of the Jefferson Medical School ——Dr Morton J Oppenheimer, head, department of physiology, Temple University School of Medicine, received an honorary degree of doctor of science at the Ursinus College commencement exercises

Alvarenga Prize Awarded—On July 14, the College of Physicians of Philadelphia awarded the Alverenga prize for 1957 to Dr William C Stadie, professor emeritus, research medicine, University of Pennsylvania, for his major contributions to our knowledge of carbohydrate metabolism " The Alvarenga prize was established by the will of Pedro Francisco DaCosta Alvarenga, of Lisbon, Portugal, an associate fellow of the College of Physicians of Philadelphia, to be awarded annually by the college on the anniversary of the death of the testator, July 14, 1883

Conference on Nutrition—A conference on nutrition in relation to disease will be held Sept 30, at the College of Physicians of Philadelphia Floyd S Daft, Ph D, director, National Institute of Arthritis and Metabolic Diseases, Bethesda, Md, will speak on "Relationship Between Hormones and Nutrition" Dr Edward H Ahrens Jr, of the Rockefeller Institute of Medical Research, New York, will speak on 'Fat Metabolism in Relation to Cardiovascular Disease—Atherosclerosis" The conference is sponsored by the Commission on Nutrition of the Medical Society of the State of Pennsylvania, the Philadelphia County Medical Society and the National Vitamin Foundation Dr Michael G Wohl and Dr Robert S Goodhart will be chairmen at the evening session

TEXAS

Personal—Dr Lawrence M Shefts, of San Antonio, has been to the Far East on a 40-day tour of Army medical activities as consultant in surgery to the Army Surgeon General He arrived in Tokyo June 15 to begin his tours of inspection and lectures to professional groups in Japan, Korea, and Okinawa

Dr Haley Honored—Dr John C Haley was named 'Distinguished Professor Emeritus of Anatomy" at a luncheon on the occasion of his retirement from the faculty of Baylor University College of Medicine, Houston A plaque was presented to him in appreciation of 30 years of service to the university A graduate of the College of Medicine in 1927, Dr Haley served successively from 1927 to 1957 as assistant, assistant professor, associate professor, and chairman and professor of the department of anatomy He will continue as secretary-treasurer of both the Baylor Medical Alumni Association and the Baylor Medical Foundation Three of Dr Haleys four sons are graduates of Baylor College of Medicine The fourth son is an attorney in Waco

House of Representatives Praises Dr Spies—The A M A Washington office reported that the House of Representatives on July 23rd passed a concurrent resolution expressing the gratitude of Congress and the American people to Dr Tom D Spies for his medical achievements, including contributions to human nutrition Dr Spies, a native of Texas, was given the A M A's distinguished service award at the recent annual meeting in New York He is head of the department of nutrition and metabolism at Northwestern University Medical School, Chicago, and director of the nutrition clinic at Hillman Hospital in Birmingham, Ala The House resolution, introduced by Speaker Sam Rayburn, cited Dr Spies' work in the fields of earlier and better methods of diagnosis and treatment on nutritional deficiency diseases

Anatomy Research—The department of anatomy and biochemistry, Baylor University College of Medicine, Houston, recently received $80,000 from the U S Public Health Service to further their research programs Half the sum was designated for equipment and remodeling during the first year, with the remaining amount to be used for traineeships and summer fellowships to supplement the present program An additional $37,800 will be granted for each of the two subsequent years The objective is to train anatomists and biochemists by providing an opportunity for medical students to obtain training which might serve to recruit them for teaching and research positions The grants will also enable the departments to attract postdoctoral and senior research fellows in cancer biology and biochemistry and to train research assistants and technical personnel for positions in cancer research

UTAH

State Association Meeting—The 62nd annual scientific session of the Utah State Medical Association will be held Sept 5-7 at the Hotel Utah, Salt Lake City The presidential address will be given by Dr James Z Davis The program includes the following two symposiums Non-toxic Disease of the Thyroid, moderated by Dr Phillip B Price, dean, University of Utah, School of Medicine, and Can Every Doctor's Office Be a Cancer Screening Clinic?, moderated by Dr Emil G Holmstrom, head, department of obstetrics and gynecology, University of Utah School of Medicine, Salt Lake City The featured speaker at the presidential banquet Sept 5 will be Dr Gunnar Gunderson, president-elect, American Medical Association A special feature of the program will be the showing of the films, "The Doctor Defendant," and "The Medical Witness," with special guests, members of the Utah State Bar Association Panel discussions, exhibits, and other meetings are planned For information write Mr H Bowman, Executive Secretary, Utah State Medical Association, 42 S 5th East St, Salt Lake City, Utah

VIRGINIA

Society News—The following officers of the Virginia Academy of General Practice have been installed Dr Malcolm H Harris, of West Point, president, Dr W Linwood Ball, Richmond, president-elect, Dr Fletcher J Wright Jr, Petersburg, vice-president, Dr Russell G McAllister, Richmond, secretary, and Dr William A Young, Richmond, treasurer

WEST VIRGINIA

Personal—Dr Rezin D Stout, of Grafton, has been reelected for a two-year term as mayor of that city The City Council reappointed Dr Karl H Trippett as health officer for the fiscal year ending June 30, 1958

Rural Health Conference—The 10th annual Rural Health Conference, sponsored by the West Virginia State Medical Association, will be held at Jackson's Mill, Oct 1 The program has been arranged by the chairman of the Rural Health Committee, Dr Charles E Staats, of Charleston, in consultation with representatives of farm groups, the Agriculture Extension Service, and the State Department of Health Theme of the conference will be "Changing Patterns' Discussion groups will consider problems of the aging, insurance and hospital costs, mental health, and health hazards Two panel discussions will follow the luncheon to be served in the Mount Vernon Dining Hall For information write the West Virginia State Medical Association, Box 1031, Charleston 24

Medical Library Bequest—Through the will of the late Dr T Jud McBee, West Virginia University has received a bequest of more than $23,000 for the development of the library at the new Medical Center Dr McBee, a urologist, who died Oct 28, 1955, also devised to the university two tracts of real estate, one in Monongalia County and the other an income oil and gas property in Greene County, Pennsylvania, for use by the university medical library While the bulk of the gift will be used to build up the library, about $5,000 is to be spent for the purpose of purchasing rare and original works concerning the history of medicine These books will provide the nucleus for a 'McBee Historical Collection which will be housed in the history room of the library at the Medical Center

Plan University Teaching Hospital—The contract for the construction of the new teaching hospital for the Medical Center at West Virginia University has been executed by representatives of the University The total cost will be $13,172,000, and it is expected that the entire project will be completed in January, 1960 About a million and a half dollars of Hill-Burton Funds were involved in the transaction University officials received notice that on July 1 approval had been granted by the surgeon general, paving the way for the actual execution of the contract July 3

If the hospital is completed in January, 1960, patients can be admitted not too long thereafter so that junior students will be able to begin clinical work in September of that year If the schedule that has been arranged can be followed, the first class at the new four-year school will be graduated in June, 1962

Appoint State Health Director—Dr William B Rossman, of Charleston, has assumed his duties as director of the new State Department of Mental Health Dr Rossmann has been engaged in the practice of psychiatry and neurology in Charleston since 1946 He served as part-time director of the State Department of Health s Bureau of Mental Hygiene from 1947 to 1952 He is a diplomate of the American Board of Psychiatry and Neurology and is a member of the Kanawha Medical Society, and the West Virginia State Medical Association Dr Rossman will attempt to organize all state institutions on a similar basis regarding their professional policies, fiscal operations, and community services The bill setting up the new Mental Health Department was passed by the State Legislature during the closing days of the session in 1957 Under the new law, the director of the new Department of Health will appoint the superintendents of the mental institutions at Barboursville, Huntington, Lakin, Spencer, and Weston He will also name the superintendent of the West Virginia Training School at St Marys

WISCONSIN

Personal—Prof Joshua Lederberg, medical genetics department, University of Wisconsin Medical School, Madison, and Mrs Lederberg left Aug 1 for a trip to Australia They will both be traveling as Fulbright Scholars and will lecture at various points en route to Melbourne, where they will attend a symposium on bacterial and virus genetics Prof Lederberg will be working with Prof Frank M Burnet at the Walter and Eliza Hall Institute of Medical Research in Melbourne Dr Burnet was Slichter Professor at the University of Wisconsin Medical School a few years ago

Endocrine Award to Dr Mueller—Dr Gerald C Mueller, associate professor of oncology, University of Wisconsin Medical School, Madison, has been named as recipient of the 1957 Schering award of the Endocrine Society The award comprises a cash grant of $2,500 and is presented annually to a scientist who has made a notable contribution in the field of endocrinology The Endocrine Society was organized in 1918 to help stimulate interest in the study of internal secretions and to collect and disseminate literature on this subject Dr Mueller plans to study the biosynthesis of intracellular particulates He plans to devote six months at the Max-Planck Institut fur Virusforschung in Tubingen, Germany, to the study of virus reproduction and the metabolic interaction of the virus particle with the host cell In addition, he will visit with European scientists and discuss problems of endocrinology and cell physiology with them

GENERAL

Influenza in Russia—Dr Albert Sabin of the Children's Hospital Research Foundation, Cincinnati, recently returned from visiting a number of virological laboratories in the U S S R He was informed by virologists and epidemiologists there that an outbreak of influenza occurred last winter in Vladivostok and subsequently spread to Moscow and other places in the Soviet Union It was reported that the disease was typical of mild influenza In several affected areas, the laboratory findings indicated the outbreak was caused by influenza D (Sendai virus) Dr Sabin did not ask for the strains, but attempts are now being made to obtain them

Committee for Research in Blindness—A National Committee for Research in Ophthalmology and Blindness was recently formed by representatives from the four national ophthalmic societies the American Academy of Ophthalmology and Otolaryngology, the American Medical Association, Section on Ophthalmology, the American Ophthalmological Society, and the Association for Research in Ophthalmology The committee plans to stimulate interest in ophthalmic research and to cooperate with and act as an advisory group to all persons and agencies interested in blindness, the prevention of blindness, vision, and research in the basic disciplines of ophthalmology For information write Dr Frank W Newell, the University of Chicago, 950 E 59th St , Chicago 37

Maurice Husik Prize—Dr William D Stewart, of Vancouver, Canada, has become the first recipient of the Maurice Husik prize for his investigative work while with the department of dermatology and syphilology of New York University Post-Graduate Medical School, New York City Dr' Stewart was the senior investigator and, with Dr Victor H Witten, co-author of work on "Measurement of X-radiation Received by the Gonads During Dermatologic Therapeutic X-radiation Techniques" Dr Maurice Husik, for whom the prize was named, has been on the staff of the New York Skin and Cancer Unit for 25 years During this time patients established a fund to provide treatment for indigent patients In July, 1956, the Maurice Husik prize was established

Fracture Association Meeting—The American Fracture Association will hold its 18th annual meeting in El Paso, Texas, at the Hotel Cortez, Sept 30 Oct 2 Twenty-five papers will be presented at the general sessions Roundtable luncheons planned for Sept 30 will include Avoidance of Pit Falls in Fracture Therapy,' "Maxillofacial Fractures,' and 'Fractures of the Head and Neck of the Humerus" Discussion periods will follow the formal presentations Guest speaker at the meeting will be Dr Dana M Street, who will speak on 'Supplemental Fixation in Medullary Nailing of the Femur' A motion picture, 'Effective Use of External Internal Fixation in Fractures, Basic Procedures and Safeguards,' will be presented by Dr Philip T Holland, Bloomington, Ind Scientific and Commercial exhibits are planned The annual banquet will be held Oct 1 For information write Dr W Compere Basom, Chairman, American Fracture Association, 520 Montana St, El Paso, Texas

Radiology Awards—The National Academy of Sciences-National Research Council has announced the award of eight research grants, two fellowships and three scholarships, totaling $68,000 by the James Picker Foundation The awards were made on recommendation of the committee on radiology of the academy-council The foundation began its program of grants and fellowships in 1950 to foster reasearch and broaden the scope of radiology Foreign recipients of grants in radiological research include Dr Erling Hammer-Jacobsen, University Hospital of Copenhagen, Dr Albert Jutras, Hotel-Dieu Hospital, Montreal, and Dr Samuel Schorr, Hadassah University Hospital, Jerusalem Scholarships went to Dr James E Bauer, University of Missouri Medical Center, Dr Eugene C Klatte, Indiana University Medical Center, and Dr William J Ruddenham, University of Pennsylvania School of Medicine The fellows are Dr Alfred J B Palubinskas, University College Hospital, London, and Dr Anssi Pekka Soila, University of Turku, Finland

Awards for Research in Aging—Awards for research on the problems of aging have been presented by the Ciba Foundation on recommendation of a panel with Prof F G Young, Cambridge, England, as corresponding member Sixty-two papers were considered from 22 countries The two highest awards were presented to Dr Hedwig Saxl, Leeds, England, for his papers 'Physiological Significance of the Reaction Between Elastin and Elastomucase in Relation to the Production of Clearing Factor'", and Dr G F Wilgram, Toronto, Canada, "An Aetiological Concept of Atherosclerosis Based on Experiments in Rats' Other winners included Dr Robert J Boucek, Miami, Fla, Dr B T Donovan, London, and Dr J J van der Werff ten Bosch, Leiden, (jointly), Dr R F Hellon, Oxford, England, Dr H G Isler, Montreal, Canada, Prof L Haranghy, Budapest, and Dr Patricia Lindop, London The awards are being offered again in 1958, the closing date for entries being Jan 1, 1958, and information may be obtained from the Ciba Foundation, 41 Portland Place, London, W 1

Dr Mallamo Wins Annual Golf Tournament—Dr Joseph T Mallamo, of Fairmont, Va, won the American Medical Golfing Association's championship for 1957 in a playoff match with Dr Gilbert Bayne at the Westchester Country Club, Rye, N Y, during the annual meeting of the American Medical Association Drs Mallamo and Bayne posted a low gross of 74 over the "difficult west course' of the Westchester Club More than 150 doctors competed in the 41st golf tournament At the annual banquet Dr Paul S Wyne, of San Francisco, was installed as president of the association, succeeding Dr Joseph Corr, of New York City Other officers are Dr James McLaughlin, of Philadelphia, president-elect, Dr John Growdon, of Kansas City, first vice-president, and Dr Vincent Larkin, of New York City, second vice-president

The 1958 tournament will be held at the Olympic Country Club in San Francisco, Dr Wyne announced The 1957 tournament committee was under the chairmanship of Dr James T Daniels

Northwest Industrial Health Conference—The fourth annual Pacific Northwest Health Conference will be held Sept 9-10 at the Hotel Multnomah, Portland, Ore Conference topics include employment of the injured and the handicapped and industrial health problems in the transportation industry The program includes the following papers and speakers

Practical Aspects of Getting the Injured Worker Back to Work, Dr Henry Kessler, Kessler Institute of Rehabilitation, West Orange, N J
The Older Worker in Industry—Including Planning for Retirement, Dr James H Sterner, Eastman Kodak Company, Rochester, N Y
Medicine—A Full Member of the Industrial Health Team, Dr Dwight H Murray, past-president, American Medical Association, Napa, Calif

The conference is opened to physicians, dentists, business executives, and persons in allied professions Registration fee is $10 00 For information write Dr Ralph R Sullivan, Program Chairman, 824 S W Fifth Avenue, Portland 4, Ore

Pharmacologists Meet in Baltimore—The Abel Scientific meeting of the American Society for Pharmacology and Experimental Therapeutics will be held Sept 4 7 at the Johns Hopkins Medical Institutions, Baltimore Registration fee for the sessions is $5 00 A symposium on the teaching of pharmacology Sept 4 will be moderated by Alfred Gilman Presentation of papers will be followed by open discussions The Abel Centennial Symposium, in memory of John Jacob Abel, professor of pharmacology, Johns Hopkins Medical School, who died in 1932, will be presented Sept 5, and will include the following topics the chemistry of insulin, the significance of epinephrine in metabolism, the isolation of the hormones of the posterior pituitary, their chemical nature and some of their pharmacological properties The centennial dinner will be held the evening of Sept 5 For information write Harold C Hodge, Secretary, American Society for Pharmacology and Experimental Therapeutics, Inc, 260 Crittenden Boulevard, Rochester 20, N Y

Pathologists Meet in New Orleans—The annual joint meeting of the American Society of Clinical Pathologists and College of American Pathologists will be held in the Roosevelt Hotel, New Orleans, La, Sept 30-Oct 4 The following panel discussions are scheduled Preservations of Specimens for Future Investigation, with Dr Alan R Moritz, chairman, Mass Screening and the Pathologist Including "Package Deal," with Dr Albert E Casey, chairman, Philosophy and Conclusions of Workshop on Graduate Teaching of Pathology, with Dr Robert A Moore and Dr John R Schenken, co chairmen A symposium Oct 1 on clinical microbiology will be presented by Dr Lyle A Weed Workshops are scheduled for the afternoons of Oct 1 and 2 The 23rd annual seminar of the American Society of Clinical Pathologists is scheduled for Oct 4 A roundtable luncheon will be held Oct 2 The annual banquet will be held the evening of Oct 1 For information write Dr Arthur H Dearing, Executive Secretary, College of American Pathologists, Prudential Plaza, Chicago 1

Muscular Dystrophy Abstract Booklet—Muscular Dystrophy Associations of America, Inc, has announced a new service, the publication of a series of monthly muscular dystrophy abstracts for research scientists and others interested in muscular dystrophy and related diseases The project is being carried out with a subsidy from the association by the Excerpta Medica Foundation of New York and Amsterdam, Holland, for distribution throughout the world The first booklet presents summaries of 59 recent papers by scientists in this country and abroad The papers are classified into two groups abstracts from the clinician, concerned mainly with general anatomo-clinical publications, and abstracts of articles concerning the basic sciences relating to muscular dystrophy The abstracts are sent to association research grantees and clinic workers and other professional individuals and institutions The abstracts were published under the general editorship of the association's Medical Advisory Board For information write the Muscular Dystrophy Associations of America, Inc, 1790 Broadway, New York 19, N Y

Association of Medical Clinics Meeting—The eighth annual session of the American Association of Medical Clinics will be held at the Muehlebach Hotel, Kansas City, Mo, Oct 24-26 The presidential address will be given by Dr George McHardy, New Orleans Three panel discussions are scheduled Can Group Practice Reduce Incidence and Length of Hospitalization?, Areas of Responsibility of the Association, and Prepaid Medical Care with Special Reference to Ambulatory Patients Workshops, planned for Oct 25, will be moderated by Dr Frederick G Thompson Jr, St Joseph, Mo, Dr Olga Hansen, Minneapolis, Minn, Dr John R Hand, Portland, Ore, and Dr R Franklin Jukes, Akron, Ohio Luncheon guest speakers will be Dr William A Sawyer, medical consultant, International Association of Machinists, Rochester, N Y, and Major General Paul Robinson, executive director, Office for Dependents' Medical Care, Army Surgeon General's office, Washington, D C For information write the American Association of Medical Clinics, Dr Edwin P Jordan, Executive Director, Box 58, Charlottesville, Va

Science Research Grants—A total of $187,358 was awarded to 70 scientists in colleges and universities throughout the United States by Research Corporation during the second quarter of the year The corporation grants are aimed chiefly at initiating fundamental research in science where, because often new and sometimes bold ideas are involved, support is hard to get Research Corporation also announced that its Williams-Waterman Fund for the combat of dietary diseases has granted $109,242 to 26 scientists during the first six months of this year A nonprofit foundation, Research Corporation was established in 1912 by Frederick Gardner Cottrell with the gift of his patent rights in the field of electrical precipitation

The Williams-Waterman Fund was established in 1935 when Dr Robert R Williams and Robert E Waterman and their associates—the inventors of the processes for the synthesis of Vitamin B_1 and its intermediates—assigned their patents to Research Corporation The income from these patents is used to foster additional research both in the field of the physical sciences and in the specific area of nutrition

Study Program on Influenza—Arranged by the Pan American Sanitary Bureau, Washington, D C, a special team visited South America July 10-20 in connection with the World Health Organization study program on influenza The objective was to convey information regarding experience with the Far East Influenza epidemic, to advise on laboratory developments in connection with the virus, and to discuss types of information needed on the behavior of the disease under winter conditions, with ministers of health, directors of laboratories, and other medical authorities in Rio de Janeiro, Brazil, Buenos Aires and São Paulo, Argentina, and Santiago, Chile

The team comprised Captain John R Seal (MC), U S Navy, chairman, Advisory Committee for the World Health Organization Influenza Study Program in the United States, Dr Arturo C Saenz, of the Pan American Sanitary Bureau, Washington, D C, Dr William Jordan, Western Reserve University School of Medicine, Cleveland, and Dr Keith E Jensen, director, Influenza Strain Study Center for the Americas of the Communicable Diseases Center, Montgomery, Ala

Medical Writers Meet in St Louis—The 14th annual meeting of the American Medical Writers Association, will be held at the Sheraton-Jefferson Hotel, St Louis, Sept 27-28, under the presidency of Dr Dean F Smiley, Evanston, Ill, secretary, American Association of Medical Colleges Eighteen medical writers and authors will present papers A workshop on medical writing, conducted by full-time medical writers, will be held Sept 28, with speakers Drs Richard M *Hewitt, senior consultant, section on publications, and* George G Stilwell, medical editor, Mayo Clinic, Rochester, Minn Speakers for Sept 27 include the following Drs Russell L Cecil, New York City, James W Colbert Jr, St Louis, Morris Fishbein, Chicago, Jacques P Gray, Detroit, Joseph F Montague, New York, Robert W Schlesinger, St Louis, Austin Smith, Chicago, Sholom O Waife, Indianapolis, and John P Wyatt, St Louis Members of the association and other collegiate graduates are invited There is no charge for the meeting Sept 27, but there is a registration fee of $5 00 for nonmembers of the association who attend the workshop For information write Dr Harold Swanberg, Secretary, W C U Bldg, Quincy, Ill

Prevalence of Poliomyelitis—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States, its territories and possessions in the weeks ended as indicated

Area	July 27 1957 Paralytic Type	July 27 1957 Total 1957	July 28 1956 Total
New England States			
Maine			
New Hampshire		1	
Vermont			3
Massachusetts	1	2	7
Rhode Island			
Connecticut		1	3
Middle Atlantic States			
New York	2	8	23
New Jersey	1	6	7
Pennsylvania			4
East North Central States			
Ohio	1	10	24
Indiana	1	5	20
Illinois	1	14	158
Michigan	1	12	15
Wisconsin	1	8	8
West North Central States			
Minnesota		8	8
Iowa		2	18
Missouri	1	8	17
North Dakota			
South Dakota		1	1
Nebraska	3	6	1
Kansas		2	7
South Atlantic States			
Delaware			
Maryland	1	1	2
District of Columbia	1	1	
Virginia	1	2	6
West Virginia			4
North Carolina	2	31	19
South Carolina	6	9	4
Georgia			13
Florida	3	7	12
East South Central States			
Kentucky	3	6	10
Tennessee	1	3	2
Alabama		2	8
Mississippi		10	11
West South Central States			
Arkansas	2	5	9
Louisiana		6	20
Oklahoma	2	9	18
Texas	7	38	63
Mountain States			
Montana			3
Idaho		3	7
Wyoming	1	1	
Colorado		1	1
New Mexico		1	1
Arizona	1	2	6
Utah		2	22
Nevada			2
Pacific States			
Washington	1	1	9
Oregon		2	4
California	6	28	74
Territories and Possessions			
Alaska			1
Hawaii			
Puerto Rico			4
Total	51	265	659

Orthopedic Fellowships—Two fellowships have been awarded in the field of orthopedics by the National Foundation for Infantile Paralysis as part of its professional education program to Dr Charles E Workman, University of Kansas School of Medicine, Kansas City, and Dr David K Clawson, Stanford University School of Medicine, San Francisco Dr Workman was awarded a fellowship of $7,330, the second foundation fellowship to be granted to him to assist in his preparation for teaching and research in orthopedics His first fellowship, for 28 months, was for $11,200 He will study under the supervision of Dr Michael L Mason at Northwestern University, Chicago, and Dr Walter P Blount at Marquette University, Milwaukee He will also study scoliosis with Dr Joseph C Risser at the Clinic of Orthopedic Surgery in Pasadena, Calif On completion of the year's study, Dr Workman plans to return to the University of Kansas as a clinical instructor of orthopedic surgery

Dr Clawson is also receiving his second foundation fellowship designed to prepare him for orthopedic academic medicine and research His first fellowship, for $7,050 was for 24 months awarded in 1955 The second fellowship, for $7,190, is for 12 months, which he will spend at the Institute of Orthopaedics, Royal National Orthopaedic Hospital, University of London, under the supervision of H J Seddon, C M G, D M, director of studies

Annual Hospital Report—The ratio of hospital admissions to population in the continental United States outstepped the total population increase in the 11-year period 1946-1956, according to the annual report on hospital statistics published in *Hospitals*, Journal of the American Hospital Association Admissions to hospitals of all types in 1956 were 22,089,719 or 132 per thousand population In 1946 the rate was 112 per thousand population Over the 11-year period, the number of admissions climbed 41%, and from 1955 to 1956, nearly 5% The hospital statistics were compiled from questionnaires sent to 6,966 hospitals in the continental United States which had 1,607,692 beds and an average daily census of 1,355,792 in 1956 Of these hospitals, 51% were nonprofit, 17% proprietary, 6% federal, and 26% state and local governmental hospitals Although less than 2% of all admissions were to psychiatric hospitals in 1956, 53% of all patients in hospitals on any given day were in psychiatric institutions

The number of hospital births reported in 1956 was 3,491,141, an increase of 64% over 1946 but only 1% above the 1955 figure Length of stay in short-term general and special hospitals, which had dropped from 9 1 to 7 8 days from 1946 to 1955, went down 0 1 day to 7 7 days, and in proprietary hospitals 5 6 days, unchanged for these types from 1955 to 1956

Nonprofit short-term hospitals in 1956 spent $24 99 per day to care for each patient, an increase of 149% from the 1946 figure of $10 04 The rise from the 1955 level of $24 15 was a little over 3% From 1946 to 1956, the average cost to the hospital per patient stay rose from $88 35 to $187 43, an increase of 112% as compared with the 149% increase in the hospital's expense per patient day Full-time personnel employed by all hospitals totaled 1,374,704 in 1956, an increase of 66% in 11 years and nearly 6% in the last year of the period In all hospitals in 1956, there were an average of 101 personnel per 100 patients, an increase of 28 people per 100 patients in 11 years

FOREIGN

Congress of Military Medicine and Pharmacy—The 15th International Congress of Military Medicine and Pharmacy will be held Sept 29-Oct 5 in Belgrad, Yugoslavia Congress topics include the following medical services in armored and motorized operations, reduction of noise in the armed forces, radiation defense in military medicine, relations between the command of troops and medical services A special symposium on hypothermy will have the following topics physiology of hypothermy, application of hypothermy in clinics, and hypothermy and reanimation Speakers from New Zealand, France, Sweden, Argentina, Turkey, Great Britain, and the United States will make presentations Film programs concerning military medicine and health education are planned Entertainment includes visits to Kalemegdan Fortress and the Military Museum, a boat excursion on the rivers Sava and Danube, a banquet Aug 3, and a tour to Oplenac Resort A special ladies' program is scheduled For information write Col Dr Aleksandar Mezic, rue Nemanjina 15, Beograd, Yugoslavia

CORRECTIONS

Radioactive Isotopes in the Diagnosis and Treatment of Cancer—In the editorial by the foregoing title in THE JOURNAL, July 6, 1957, page 1097, righthand column, third paragraph, the symbol (S^{90}) should have been Sr^{90} In the same column, six lines from the bottom of the page, and in the two instances on the following page where the symbol (Cr^{51}) appears, the symbol (P^{32}) should be substituted for it

Frank Billings Lectureship—The proper title of the Frank Billings Lecture delivered by Dr E P Joslin in 1940 and listed in THE JOURNAL, July 27, 1957, page 1485, was "Universality of Diabetes Survey of Diabetic Morbidity in Arizona"

EXAMINATIONS AND LICENSURE

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS *Part I* Various Centers, Sept 3-4 Sec, Dr John B Hubbard 133 South 36th St Philadelphia 4

MEDICAL SPECIALTY BOARDS

AMERICAN BOARD OF ANESTHESIOLOGY *Oral* Washington Oct 28-Nov 1 Various locations in the United States and Canada, July 18 Final date for filing application is Jan 18 Sec, Dr Curtiss B Hickcox, 80 Seymour St, Hartford 15

AMERICAN BOARD OF DERMATOLOGY *Oral* Baltimore, Oct 11-13 Final date for filing application was April 1 Sec, Dr Beatrice Maher Kesten, One Haven Ave, New York 32

AMERICAN BOARD OF INTERNAL MEDICINE *Written* Oct 21 *Oral* Los Angeles, Sept 11-14 Final date for filing applications was Feb 1 Exec Sec, Dr W A Werrell, 1 West Main St, Madison 3, Wis

AMERICAN BOARD OF NEUROLOGICAL SURGERY Examination given twice annually, in the spring and fall In order to be eligible a candidate must have his application filed at least six months before the examination time Sec, Dr Leonard T Furlow, Washington University School of Medicine, St Louis 10

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY *Part I* Chicago Jan 2 *Part II* Chicago, May 7-17 Final date for filing application is September 1 Sec, Dr Robert L Faulkner, 2105 Adelbert Road, Cleveland 6

AMERICAN BOARD OF OPHTHALMOLOGY *Oral* Chicago Oct 7-11 *Written* January 1958 Final date for filing application was July 1 Sec, Dr Merrill J King, Box 236, Cape Cottage Branch, Portland 9 Maine

AMERICAN BOARD OF ORTHOPAEDIC SURGERY Parts I and II, New York City, Jan 29-31, 1958 Final date for filing application is August 15 Sec, Dr Sam W Banks 116 South Michigan Avenue, Chicago 3

AMERICAN BOARD OF OTOLARNGOLOGY Chicago Oct 7-11 Final date for filing application was in April Sec, Dr Dean M Lierle, University Hospitals, Iowa City

AMERICAN BOARD OF PATHOLOGY *Oral and Written Pathologic Anatomy and Clinical Pathology* New Orleans, Sept 26-28 Final date for filing application is August 15 Sec, Dr Edward B Smith, Indiana University Medical Center, Indianapolis 7

AMERICAN BOARD OF PEDIATRICS *Oral* Chicago Oct 11-13 Sec, Dr John McK Mitchell, 6 Cushman Road, Rosemont, Pa

AMERICAN BOARD OF PLASTIC SURGERY *Oral and Written Examination* San Francisco Oct 31-Nov 2 Final date for filing case reports was July 1 Corresponding Sec Miss Estelle E Hillerich 4647 Pershing Ave, St Louis 8

AMERICAN BOARD OF PREVENTIVE MEDICINE *In Public Health Oral and Written* Cleveland, Nov 7-9 Sec, Dr Thomas F Whayne, 3438 Walnut St, Philadelphia

AMERICAN BOARD OF PROCTOLOGY *Oral and Written Parts I and II* September Sec, Dr Stuart T Ross, 520 Franklin Ave, Garden City, N Y

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY New York Dec 16-17 San Francisco, March 17-18 Sec, Dr David A Boyd, Jr, 102-110 Second Ave, S W, Rochester, Minn

AMERICAN BOARD OF RADIOLOGY Washington, Sept 23-28 Final date for filing application was June 1 Chicago May 20-24 Final date for filing application is Jan 1 1958 Sec, Dr H Dabney Kerr Kahler Hotel Bldg, Rochester, Minn

AMERICAN BOARD OF SURGERY *Part II* Buffalo Sept 23-24 New Haven, Oct 21-23 Indianapolis, Nov 18-19, Cincinnati, Dec 16-17 New Orleans Jan 13-14 Durham, N Car, Feb 10-11, Baltimore, March 10-11, Chicago, May 12-13, Los Angeles, June 16-17 and Portland, Oregon June 20-21 Sec, Dr John B Flick, 225 So 15th St, Philadelphia 2

AMERICAN BOARD OF UROLOGY *Written examination* Various cities throughout the country *Pathology and Oral Clinical* February 1958 Location not decided Exec Secretary, Mrs Ruby L Griggs, 30 Westwood Road, Minneapolis 16

BOARD OF THORACIC SURGERY *Written* Various centers throughout the country, Sept 6, and the closing date for registration was July 1, 1957 Sec, Dr William H Tuttle, 1151 Taylor Ave Detroit 2

GOVERNMENT SERVICES

AIR FORCE

New Air Force Generals —The surgeon general of the Air Force announced July 10 that three senior medical officers were promoted to the following rank Major Gen Oliver K Niess, surgeon of Pacific Air Forces, Brig Gen Sheldon S Brownton, director of staff, Office of the Assistant Secretary of Defense (Health and Medical), Brig Gen John K Cullen, director of plans and hospitalization, office of the surgeon general

NAVY

Military Medicodental Symposium —The First Annual Medical Department Symposium for Combined Armed Forces Medical Department Reserve Officers under the auspices of the Commandant, Fifth Naval District, will be held at the Naval Hospital, Portsmouth, Va , Oct 16-18 The program will have as its theme Advances in Operational Military Medicine’

The first day’s meeting will be conducted at the Naval Hospital with a special afternoon program at the Dental Clinic, Naval Station, Norfolk, Va , for members of the Dental Corps There will be separate meetings for members of the Nurse Corps and of the Medical Service Corps The second day’s meeting, held at the Fleet Training Center at the Naval Base at Norfolk, will be highlighted by a talk on ‘Advances in Medical Defense Against Thermonuclear Injuries’ by Rear Admiral Charles F Behrens, M C , Retired Lectures on the third day will be held at the Naval Hospital, Portsmouth, Va

The symposium has been approved for retirement point credit for those in attendance who are on the Active Status List in the Armed Services Reserve Program, provided they register with the authorized military representative assigned the duties of recording daily attendance Information may be obtained from the District Medical Officer, Fifth Naval District, Naval Station, Norfolk, Va

PUBLIC HEALTH SERVICE

Poliomyelitis Vaccine —As of July 24, more than 68 million persons have been vaccinated with at least one injection of poliomyelitis vaccine since April 12, 1955, when the Salk vaccine first became available, Dr Leroy E Burney, the surgeon general, has announced However, about 41 million persons under 40 years of age have had no injections of the vaccine The surgeon general also noted that of the 68 million vaccinated persons, about 48 million need one or more doses to complete the recommended schedule of three injections To obtain data on the groups and areas where vaccinations are most needed, the Public Health Service has asked the Bureau of the Census to include questions on poliomyelitis vaccinations in the sample population survey for August The data will be made available to state and local health departments, medical societies and voluntary health agencies this fall to assist them in planning local drives

Medical Exchange Mission to the Soviet Union —Dr Leroy E Burney, the surgeon general, announced Aug 11 that five United States public health physicians would leave on Aug 13 on a four-week exchange mission to the USSR

This mission will study prevailing health conditions and practices in the USSR The American physicians will visit cities and villages in 5 of the 15 republics of the USSR in Europe and Asia They will visit the Union Ministry of Health, city health departments, hospitals, dispensaries, industrial medical services, research institutes, and medical schools A reciprocal Soviet Union public health mission will visit the United States in October This mission to the Soviet Union was arranged by the Public Health Service, in cooperation with the U S Department of State

Members of the mission are Drs Thomas Parran, dean, Graduate School of Public Health, University of Pittsburgh, and a former surgeon general of the Public Health Service, Malcolm Merrill, director of public health, State Department of Public Health, state of California, Otis L Anderson, assistant surgeon general, Public Health Service, Department of Health, Education, and Welfare, H van Zile Hyde, medical director, Public Health Service, Department of Health, Education, and Welfare, and Leonid Snegeriff, associate professor, Department of Public Health Practice, Harvard School of Public Health

The mission will visit Moscow, Leningrad, Ufa, Kuybyshev, in the Russian Federated Soviet Socialist Republic, and Alma Ata, Frunze, Tashkent, and Stalinabad, the capitals of the Central Asiatic Soviet Republics

DEPARTMENT OF DEFENSE

Outbreaks of Influenza —U S Public Health Service Morbidity and Mortality Weekly Report dated Aug 2 has the following reports, among others, of the outbreaks of influenza On July 7 the U S S Patch left New York with military personnel from at least 14 different locations in the United States transited through Fort Dix About 300 cases of influenza occurred on board ship from July 9 to 23 The attack rate was 41 1% in troop contingents, 18 1% in cabin passengers, and 17 2% in members of the crew Of six paired specimens collected at a 10-day interval, four had titer rises against the A/Japan/305/57 influenza virus

The Texas Department of Health states that 30 cases of influenza have been reported at the Corpus Christi Naval Air Station All were among Navy personnel from San Diego One positive and two probable isolates of virus similar to Far East strains have been made at the 4th Army Medical Laboratory at Fort Sam Houston

Dr Gordon Meiklejohn, University of Colorado, reports that three of five paired serums obtained at Warren Air Force Base, Wyoming, early in July show diagnostic rises in antibody by the hemagglutination test Antigens used were the Ann Arbor/56 and Denver/1/57 strains of influenza A virus

DEATHS

Schmidt, Louis Ernst ⊛ for many years a member of the faculty of Northwestern University Medical School in Chicago, died at Wausau, Wis , July 12, aged 88 Dr Schmidt was born in Chicago Jan 8, 1869 He was educated at the Chicago College of Pharmacy and the University of Michigan in Ann Arbor Following his graduation from Northwestern University Medical School in Chicago in 1895, he studied at the universities of Berlin and Vienna, and at Paris, Breslau, and London In 1898 he inaugurated a clinic for the treatment of genitourinary diseases at Northwestern University, was one of the first doctors in the nation to practice urology as a medical specialty In 1946 became emeritus professor of urology and retired as chairman of the department Northwestern University Medical School From 1931 to 1942 he was active in Chicago s campaign for the eradication of syphilis Dr Schmidt was secretary of the Section on Genito-Urinary Diseases of the American Medical Association from 1912 to 1915, when he became chairman, serving until 1916 He was a specialist certified by the American Board of Urology, a member of the American Association of Genito-Urinary Surgeons, and a fellow of the American Public Health Association and the American College of Surgeons He was at one time a member and secretary of the city board of health of Chicago, in which city he was associated with St Luke's Hospital, Passavant Hospital, and the Grant Hospital During World War I he was member of the advisory board and consultant, Great Lakes Naval Training Station

Hunner, Guy L ⊛ Baltimore, born in Alma, Wis , Dec 6, 1868, Johns Hopkins University School of Medicine, Baltimore, 1897, adjunct professor emeritus of gynecology at his alma mater, where he was a member of the faculty since 1902, specialist certified by the American Board of Urology, member of the American Gynecological Society, American Urological Association, and the Southern Surgical Association, of which he was past-president, past-president of the Baltimore City Medical Society, in 1950 received the Research Medal of the Southern Medical Association in recognition of his work on diagnosis and treatment of diseases of the genitourinary tract, fellow of the American College of Surgeons, a life-size portrait of Drs Hunner, Thomas S Cullen, and Samuel Griffith Davis Jr was placed in the waiting room of the Church Home and Infirmary, the gift of the graduate nurses of the institution, the portrait was the work of Dr Hunner s daughter, discoverer of what has come to be known as Interstitial Cystitis with Ulceration (Hunner's Ulcer), consultant in gynecology, Sinai Hospital, associated with the Hospital for Women of Maryland, Johns Hopkins Hospital, and the Union Memorial Hospital, died in the Sheppard and Enoch Pratt Hospital July 14, aged 88, of carcinoma of the liver

Glasgow, Samuel Condit ⊛ Salinas, Calif , born in Niagara, N D , July 11, 1891, New York Homeopathic Medical College and Flower Hospital, New York City, 1924, specialist certified by the American Board of Otolaryngology, fellow of the American Academy of Ophthalmology and Otolaryngology and the American College of Surgeons, past-president of the Monterey County Medical Society and the Monterey Academy of Medicine, veteran of World War I, president-elect and chief of staff, Salinas Valley Memorial Hospital died May 28, aged 65, of acute pulmonary edema

Lewis, James Prince ⊛ Boston, Harvard Medical School, Boston, 1904, specialist certified by the American Board of Otolaryngology, member of the American Academy of Ophthalmology and Otolaryngology, served on the faculty of Tufts College Medical School, veteran of World War II, associated with the Waltham (Mass) Hospital, Boston Floating Hospital, Cambridge City (Mass) Hospital, and the Boston Dispensary, died in the Phillips House, Massachusetts General Hospital May 31, aged 76, of heart failure

Curtis, Lawrence, Swarthmore, Pa , born in Brookfield Conn , Feb 23, 1890, University of Pennsylvania School of Medicine, Philadelphia, 1923, certified by the National Board of Medical Examiners, a founder member of the American Board of Plastic Surgery, fellow of the American College of Surgeons, formerly on the faculty of the University of Pennsylvania Graduate School of Medicine, veteran of World War I served on the staffs of the Presbyterian Hospital and the Graduate Hospital of the University of Pennsylvania, died June 8, aged 67, of cerebral hemorrhage

Goldhammer, Samuel ⊛ Denver, Denver and Gross College of Medicine, 1910, formerly on the faculty of the University of Colorado School of Medicine, member of the American Academy of Ophthalmology and Otolaryngology, specialist certified by the American Board of Ophthalmology, veteran of World War I, on the staffs of the Beth Israel Hospital, National Jewish Hospital and the General Rose Memorial Hospital, where he died May 22 aged 68 of cerebral thrombosis

Allen, Robert Clarke, St Joseph, Mich , Detroit College of Medicine, 1904, associated with Mercy Hospital in Benton Harbor and St Joseph–Benton Harbor Memorial Hospital, died in the University Hospital, Ann Arbor, May 28, aged 76, of coronary disease

Ankerson, Gustav E ⊛ Memphis, Tenn , College of Physicians and Surgeons, Memphis, 1907 died in the Baptist Hospital May 11 aged 78

Barrett, Charles Cyrus ⊛ Princeton, Ill , Rush Medical College Chicago, 1902, past-president of the Bureau County Medical Society, on the staffs of the St Margaret s Hospital in Spring Valley and the Perry Memorial Hospital, where he died May 27, aged 83, of cerebrovascular accident

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⊛ Indicates Member of the American Medical Association

Bauer, August Allan ⊕ Kankakee, Ill., Chicago Medical School, 1928, specialist certified by the American Board of Radiology, member of the Radiological Society of North America and the American College of Radiology, associated with the Kankakee Clinic, died in a hospital in Los Angeles June 23, aged 60, of cerebral hemorrhage

Carlton, Albert C., Redwood City, Calif., Cooper Medical College, San Francisco, 1901, died May 30, aged 78

Casey, George Morris, Hudson Falls, N. Y., Albany (N. Y.) Medical College, 1905, an associate member of the American Medical Association, past-president of the Washington County Medical Society, associated with the Glens Falls Hospital, died June 2, aged 77, of arteriosclerotic heart disease

Corbett Lacy Wood, Fayetteville N. C., Medical College of South Carolina, Charleston 1915 service member of the American Medical Association, veteran of World War I, associated with the Veterans Administration Hospital, where he died May 8, aged 66, of coronary occlusion

Cowherd, Joseph Kile, Cumberland, Md., University College of Medicine Richmond, 1909, veteran of World War I, on the courtesy staff, Memorial Hospital, where he died June 8 aged 72, of aneurysm of the abdominal aorta

Curtiss, Charles Romaine ⊕ Joliet, Ill., Illinois Medical College, Chicago 1900, a member of the honorary staff of the Silver Cross Hospital, served on the staff of St. Joseph's Hospital, where he died June 18, aged 78

DeMeritt, Charles Law, Union City, N. J., Baltimore Medical College, 1897, past-president of the Hudson County Medical Society, associated with North Hudson Hospital in Weehawken, where he died June 4, aged 85 of Parkinson's disease and uremia

Donaldson, Charles W. ⊕ Green Forest, Ark., University of Arkansas School of Medicine, Little Rock, 1903, died March 12, aged 84

Earle, George William, Estancia, N. M., Tufts College Medical School, Boston, 1910, veteran of World War I, at one time practiced in Casper, Wyo., where he served as mayor for two terms, died May 17 aged 70

Emery, Clarence Jr. ⊕ Bangor, Maine, Jefferson Medical College of Philadelphia, 1934, veteran of World War II, on the staff of the Eastern Maine General Hospital, died at Moosehead Lake in Greenville June 4, aged 55 of a heart attack

Estes, Samuel J., Oregon City, Ore., Memphis (Tenn.) Hospital Medical College, 1902, died May 27, aged 82

Emrich, William H., Louisville, Ky., Kentucky University Medical Department, Louisville, 1906, veteran of World War I, a surgical staff member of St. Anthony Hospital, for many years surgeon in charge and owner of the William H. Emrich Hospital, past-president of the Muldraugh Hill Medical Society, died June 2, aged 73, of arteriosclerosis, heart disease, and hyperthyroidism

Everett, Alfred Edward ⊕ Granite City, Ill., St. Louis College of Physicians and Surgeons, 1902, past-president of the Madison County Medical Society, died June 12, aged 83

Farber, Harry ⊕ Denton, Texas, L. R. C. P., Edinburgh, L. R. C. S., Edinburgh and L. R. F. P. & S., of Glasgow, 1935, veteran of World War II, died in Laguna, Calif., June 15, aged 46

Farrington, Harvey, Glenview, Ill., Hahnemann Medical College and Hospital of Philadelphia, 1896, died June 9, aged 84

Fisher, Ralph Edward, Cleveland, University of Wooster Medical Department, Cleveland, 1904, died in the Benjamin Rose Hospital May 10, aged 77, of coronary thrombosis

Finch, Frederick Lionel, Portsmouth, Va., Medical College of Virginia, Richmond, 1932, an associate member of the American Medical Association, at one time on the faculty of his alma mater, veteran of World War II, chief of the x-ray department at the Norfolk Naval Shipyard, died May 21, aged 51, of a heart attack

Fowler, Lorin Lycurgus ⊕ Marion, Ill., St. Louis College of Physicians and Surgeons, 1907, veteran of the Spanish-American War and World War I, served on the staff of Anna (Ill.) State Hospital, member of the staff at Marion Memorial Hospital, where he died June 1, aged 80, of coronary occlusion

Frame, Ellis Summers, Webster Springs, W. Va., Kentucky School of Medicine, Louisville, 1907, represented Webster County in the House of Delegates, 1931-1932, county health officer, on the staff of the Webster County Memorial Hospital, where he died June 4, aged 80, of cardiovascular disease

Fuchs, John Hunter ⊕ Jamaica Estates, N. Y., Georgetown University School of Medicine, Washington, D. C., 1933, member of the American Academy of General Practice and past-president of the New York State division, veteran of World War II, on the staffs of the Kew Gardens (N. Y.) Hospital, Mary Immaculate Hospital, and the Jamaica Hospital in Jamaica, where he died June 18, aged 49

Gallagher, William Joseph ⊕ St. Louis, St. Louis University School of Medicine, 1920, served as assistant professor of surgery at his alma mater, fellow of the American College of Surgeons, specialist certified by the American Board of Surgery, on the staff of St. Louis City Hospital, St. Mary's Group of Hospitals, and St. John's Hospital, where he died June 20, aged 63

Garrett, Robert Edward, Los Angeles, University of Maryland School of Medicine, Baltimore, 1890, superintendent of the Spring Grove State Hospital in Catonsville, Md., from 1928 to 1935, died June 9, aged 89, of arteriosclerosis

Gass, Charles Craig, Omaha, University of Nebraska College of Medicine, Omaha, 1939, served as instructor of radiology at his alma mater, veteran of World War II, died May 31, aged 43, of multiple sclerosis

Giamboy, Anthony Paul ⊕ Boothwyn, Pa, Georgetown University School of Medicine, Washington, D C, 1935, certified by the National Board of Medical Examiners, served on the staffs of the J Lewis Crozer and Sacred Heart hospitals in Chester, died at Delaware Park in Stanton, Del, June 3, aged 49, of coronary thrombosis

Good, Richard Burchill, West Englewood, N J, Cornell University Medical College, New York City, 1929, served on the staffs of the Christ Hospital in Jersey City, and North Hudson Hospital in Weehawken, died May 23, aged 55, of cerebral hemorrhage

Goode, Edward Allan, Flushing, N Y, University of Toronto Faculty of Medicine, Toronto, Ontario, Canada, 1905, an associate member of the American Medical Association, specialist certified by the American Board of Otolaryngology, died June 1, aged 79

Gordon, Walter C ⊕ Providence, R I, University of Maryland School of Medicine, Baltimore, 1907, on the staffs of the Roger Williams Hospital and St Joseph's Hospital, died June 1, aged 79, of hepatitis and cirrhosis of the liver

Grant, Arthur Adolph ⊕ Lawrence, Mass, Medizinische Fakultät der Universität, Vienna, Austria, 1925, associated with St John's Hospital, Bon Secours Hospital, Bessie M Burke Memorial Hospital, and the Clover Hill Hospital, where he died June 10, aged 56, of posterior myocardial infarction

Griffith, Reuben William Jr, Pontotoc, Miss, Cornell University Medical College, New York City, 1951, interned at the Kings County Hospital in Brooklyn, where he served a residency, medical officer in the U S Army Reserve in Germany until recently, served on the staff of the Pontotoc Community Hospital, died in Newton May 9, aged 29, of mediastinal hemorrhage pneumothorax, and contusion of the heart as the result of an automobile accident

Hager, Victor K ⊕ St Louis, St Louis University School of Medicine, 1940, certified by the National Board of Medical Examiners, senior instructor in internal medicine at St Louis University School of Medicine, veteran of World War II, on the staffs of St Mary's and Firmin Desloge hospitals, died May 30, aged 40, of a heart attack

Hagler, Arthur Lee ⊕ Wauwatosa, Wis, Rush Medical College, Chicago, 1899, member of the Illinois State Medical Society, formerly practiced in Springfield, Ill, where he was on the staff of St John's Hospital, veteran of World War I, died in the Misericordia Hospital, Milwaukee, June 1, aged 87

Hale, John Peter, Alton, Ill, Illinois Medical College, Chicago, 1908, member of the staff of Alton Memorial Hospital, died May 22, aged 79, of heart disease

Hammers, Benjamin Nicol, Major, U S Air Force, Temple University School of Medicine, Philadelphia, 1943, interned at Presbyterian Hospital in Pittsburgh, service member of the American Medical Association, member of the Industrial Medical Association, veteran of World War II, died in Washington, D C, April 18, aged 39, of coronary occlusion

Hand, Edgar Hall, Charlotte, N C, North Carolina Medical College, Charlotte, 1907, member of the Medical Society of the State of North Carolina, for many years county health officer, died June 1, aged 76

Harris, Irwin James ⊕ St Louis, Washington University School of Medicine, St Louis, 1901, died in the *Jewish Hospital June 13, aged 76, of cerebral vascular* accident

Hartung, Walter Henry, Toledo, Ohio, Toledo Medical College, 1912, since 1943 commissioner of health of Toledo, served as chairman of the public health council and director of the Ohio Department of Health, formerly county coroner, veteran of World War I, associated with St Vincents Hospital, died in St Charles Hospital June 1, aged 69 of cerebral thrombosis and uremia

Hetherington, Albert Jackson, Oklahoma City, Okla, American Medical Missionary College, Battle Creek, Mich, and Chicago, 1901, Medical Department of Tulane University of Louisiana, New Orleans, 1907, veteran of World War I, died May 21, aged 83, of arteriosclerotic heart disease and congestive failure

Hervey, William Eugene ⊕ East St Louis, Ill, Bennett Medical College, Chicago, 1911, veteran of World War I, associated with St Mary's Hospital and the Christian Welfare Hospital, where he died June 2, aged 75, of cerebral hemorrhage

Hewins, *Warren Wilburn, Evansville, Ind, Indiana* University School of Medicine, Indianapolis, 1911, specialist certified by the American Board of Urology, member of the American Urological Association, fellow of the American College of Surgeons, veteran of World War I, on the staffs of Welborn Memorial Baptist and Protestant Deaconess hospitals, died in St Mary's Hospital June 7, aged 68, of arteriosclerosis

Hicks, James Bryan, Cottonwood, Ala, Johns Hopkins University School of Medicine, Baltimore, 1924, veteran of World War II, died April 20, aged 58

Hodges, Guy ⊕ Rogers, Ark, College of Physicians and Surgeons, Little Rock, 1910, veteran of World War I, served as a member of the school board and city council, died June 8, aged 69

Hoeflich, Werner Franz Armand ⊕ Houston, Texas, Baylor University College of Medicine, Dallas, 1938, specialist certified by the American Board of Anesthesiology, member of the American Society of Anesthesiologists, served as treasurer of the Texas Society of Anesthesiology, veteran of World War II, on the *staff of St Joseph's Hospital, where he died June 11,* aged 44

Holzman, Mark Benjamin, Wilmington, Del, Medico-Chirurgical College of Philadelphia, 1904, served in France during World War I, member of the Medical Society of Delaware, on the staffs of the Wilmington General Hospital and the Memorial Hospital, where he died June 9, aged 74, of myocardial infarction

Houser, Harvey Clifford ⊕ Westfield, Ill, Bennett Medical College, Chicago, 1914, past-president and secretary of the Clark County Medical Society, member of the American Academy of General Practice, on the staff of the Paris (Ill) Hospital, veteran of World War I, member of the board of directors of the Westfield State Bank, died in Gallup N M, June 12, aged 69 of coronary thrombosis

Huckleberry, Carl Douglas ⊕ Indianapolis, Indiana University School of Medicine, Indianapolis, 1943, on the staff of the Veterans Administration Hospital, died in Danville Ind June 4 aged 38

Hunt, Augustus Stout, Normal, Ill, Homeopathic Medical College of Missouri, St Louis, 1899, veteran of World War I, died in the Veterans Administration Hospital Dwight, June 11, aged 85

Hutchings, James Henry, Maysville, Ky, Pulte Medical College Homeopathic Cincinnati, 1903 medical examiner on local board during World War I, formerly county health officer, died in Hayswood Hospital May 28 aged 77 of cancer of the prostate

Hutto Archie Tecumseh, Pelion, S C, University of Nashville (Tenn) Medical Department, 1907, died in the South Carolina Baptist Hospital, Columbia, May 10, aged 73 of carcinoma of the prostate

Ide, Clarence Edward, San Diego, Calif, Columbia University College of Physicians and Surgeons, New York City, 1894, veteran of World War I, died May 26, aged 87, of arteriosclerotic heart disease

Jonitz Robert ⊕ Greenville, S C, McGill University Faculty of Medicine, Montreal, Quebec, Canada, 1930, on the staffs of the St Francis and Greenville General hospitals, certified by the National Board of Medical Examiners, died June 10, aged 56, of congestive heart failure

Kaufman, Irving ⊕ Boston, College of Physicians and Surgeons, Boston, 1941, associated with the Massachusetts Memorial Hospitals, where he died June 11, aged 48, of uremia

Kavanagh, Joseph James, San Francisco, University of California School of Medicine, San Francisco, 1903, veteran of World War I, died in Yountville June 10, aged 75

Kemp, Richard Joseph, Washington, D C, University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1921, member of the Medical Society of the District of Columbia, veteran of World War I, member of the staffs of the Children's Hospital and the Episcopal Eye, Ear, and Throat Hospital, honorary police inspector, died in the National Institutes of Health, Bethesda, Md, May 2, aged 62, of cancer

Kempf, Raymond Aloysius, Utica, N Y, University and Bellevue Hospital Medical College, New York City, 1910, an honorary member of the staff of St Elizabeth Hospital, died May 20, aged 69

Kerr, Joseph T ⊕ Wilson, N C, Jefferson Medical College of Philadelphia, 1935, fellow of the American College of Surgeons, member of the staff of the Carolina General Hospital, died in Wilmington June 17, aged 50

Kesmodel, Karl Frederick ⊕ Birmingham, Ala, Tulane University School of Medicine, New Orleans, 1916, specialist certified by the American Board of Radiology, member of the Radiological Society of North America and the American College of Radiology, past-president of the Jefferson County Medical Society, for many years served in the regular U S Army, veteran of World War I, died in St Vincent s Hospital May 27, aged 63, of septicemia and pyelonephritis

Klaus, Henry, Union City, N J, Columbia University College of Physicians and Surgeons, New York City, 1912, fellow of the American College of Surgeons, veteran of World War I, on the staff of the Christ Hospital in Jersey City, died June 4, aged 68, of coronary thrombosis

Kloman, Erasmus H, Baltimore, University of Maryland School of Medicine, Baltimore, 1910, also a graduate in pharmacy, member of the Medical and Chirurgical Faculty of Maryland, past-president of the Board of Medical Examiners of Maryland, fellow of the American College of Surgeons, at one time on the faculty of his alma mater, veteran of World War I, associated with the Maryland General Hospital, died April 30, aged 72

Kramer, Floyd, Colonel, U S Army, Pelham, N Y, Starling-Ohio Medical College, Columbus, 1908, service member of the American Medical Association, entered the medical corps of the U S Army in 1910, rose through the various grades to that of colonel on May 28, 1936, retired Jan 31, 1942, died in Lawrence Hospital, Bronxville, June 16, aged 73, of cerebral hemorrhage

Krenz, Carl ⊕ Long Island City, N Y, Yale University School of Medicine, New Haven, Conn, 1925, medical examiner for the Selective Service during World War II, at one time instructor in pathology at Western Reserve University School of Medicine in Cleveland, on the staffs of the Physicians Hospital in Jackson Heights and the Queens General Hospital in Jamaica, died June 14, aged 56, of coronary disease

Kulp, Raymond Ranney ⊕ Bettendorf, Iowa, State University of Iowa College of Medicine, Iowa City, 1904, served overseas during World War I, on the staffs of the St Luke's and Mercy hospitals in Davenport, died May 21, aged 78, of coronary occlusion

Laird, Everitt Holmes ⊕ Aliquippa, Pa, University of Pittsburgh School of Medicine, 1928, member of the American Academy of General Practice, died March 8, aged 58

Lamy, Rudolf ⊕ Franklin Square, N Y, Schlesische Friedrich-Wilhelms-Universitat Medizinische Fakultat, Breslau, Prussia, Germany, 1922, member of the American Academy of General Practice, died May 20, aged 62

Langheim, Henry William, Napa, Calif, the Hahnemann Medical College and Hospital, Chicago, 1899, at one time associated with the Indian Service in Lawton, Okla, died in the Parks Victory Memorial Hospital April 26, aged 86

Lawwill, Robert Lewis ⊕ West Union, Ohio, Eclectic Medical College, Cincinnati, 1922, served as health commissioner of the Adams-Brown counties health district, administrator of the Adams County Hospital, where he died April 20, aged 60, of coronary thrombosis

Le Merle, Eugene Lyman, Washington, D C , Columbian University Medical Department, Washington, 1897, served as chief of contagious diseases of the District Health Department, on the staff of the Central Dispensary and Emergency Hospital, died in Ashton, Md June 13, aged 86, of bronchopneumonia

Leonard, Marion Brady, New Haven, Conn , Yale University School of Medicine, New Haven, 1931, member of the Connecticut State Medical Society, died Jan 9, aged 52, of cerebral hemorrhage

Lepke, Joseph Elmer ⊕ Chicago, Rush Medical College, Chicago, 1923, died in the Jackson Park Hospital June 6, aged 59, of arteriosclerotic heart disease

Lester, John Elbert ⊕ Marietta, Ga , Atlanta College of Physicians and Surgeons, 1902, for many years county health commissioner, died May 11, aged 80, of a cardiovascular accident

Levy, Abraham Nathan ⊕ New York City, University and Bellevue Hospital Medical College, New York City, 1912, died in the Queens General Hospital, Jamaica, June 10, aged 68

Lewis, Henry L ⊕ Liberty, Miss , Louisville (Ky) Medical College, 1892, on the staff of the Field Memorial Hospital in Centreville, died May 17, aged 89, of bronchopneumonia

Longabaugh, Rudolph Ignatius, Captain, U S Navy, retired, San Mateo, Calif , University of California School of Medicine, San Francisco, 1903, fellow of the American College of Surgeons, service member of the American Medical Association, veteran of World Wars I and II, entered the U S Navy in 1907 and retired April 11, 1925, in 1940 recalled to active duty, again retired in 1946, died May 16, aged 75

Long, Walter Richard ⊕ Philadelphia, Temple University School of Medicine, Philadelphia, 1933, veteran of World War II, associated with Nazareth Hospital, St Mary's Hospital, and Eugenia Memorial Hospital, where he died June 10, aged 53, of acute myocardial infarction

Lyons, Joseph William ⊕ Stollings, W Va , University of Pennsylvania School of Medicine, Philadelphia, 1909, veteran of World War I, president and part owner of the Holden (W Va) Hospital, died in St Marys Hospital, Huntington, May 29, aged 73, of liposarcoma

McAdow, Ernest B , De Kalb, Mo , Ensworth Medical College, St Joseph, Mo , 1897, Lincoln (Neb) Medical College of Cotner University, 1896, died June 14, aged 84

McCarty, Paul Dean ⊕ Tower, Minn , Rush Medical College, Chicago, 1906, died April 24, aged 73, of acute coronary thrombosis

McGinnis, Daniel H , Detroit, University of Western Ontario Faculty of Medicine, London, Ontario, Canada, 1922, died in the Henry Ford Hospital April 6, aged 62, of adenocarcinoma of the colon

Magune, Frank Leroy ⊕ Worcester, Mass , Medical School of Maine, Portland, 1904, fellow of the American College of Surgeons, for many years physician at the Worcester County Jail, served on the staff of the Worcester City Hospital, died May 11, aged 76, of carcinoma of the prostate

Malik, Edward Anthony ⊕ Detroit, Wayne University College of Medicine, Detroit, 1939, interned at the Grace Hospital, died June 1, aged 49

Marshall, Roy Jay ⊕ Rome, N Y , Albany (N Y) Medical College, 1910, veteran of World War I, formerly city health officer, on the staff of the Rome Hospital and Murphy Memorial Hospital, where he died June 12, aged 70, of cerebral hemorrhage

Mackenzie, Donald William, Indianapolis, University of Louisville (Ky) Medical Department, 1894, veteran of World War I and the Spanish-American War, died in Martinsville May 6, aged 88, of myocardial failure

Marcy, William Henry, Buffalo, New York Homeopathic Medical College and Hospital, New York City, 1893, fellow of the American College of Surgeons, an associate member of the American Medical Association, served as president of the Association of New York Central Lines Surgeons, consultant, Millard Fillmore Hospital, died in Gulfport, Fla , May 18, aged 86

Marxuach, Manuel Jose, New York City, University of Virginia Department of Medicine, Charlottesville, 1899, died in St Vincent's Hospital April 3, aged 82, of arteriosclerosis

Mason, John Franklin, Bradenton, Fla , Southern College of Medicine and Surgery, Atlanta, 1912, an associate member of the American Medical Association, died May 22, aged 69, of a heart attack

Matus, Morris Rudolph, Bayside, N Y , University and Bellevue Hospital Medical College, New York City, 1922, for many years member of the New York City Health Department, clinical instructor at the New York Medical College, Flower and Fifth Avenue Hospitals, associated with the Queens General Hospital in Jamaica, died May 30, aged 56, of coronary thrombosis

Maynard, Donald Edmund ⊕ Glenview, Ill , Northwestern University Medical School, Chicago, 1922, died June 17, aged 62, of coronary occlusion

Meyer, Alfred Henry, Camdenton, Mo , St Louis College of Physicians and Surgeons, 1906, died May 2, aged 75

Miller, Edgar T., Woodbury, Conn , University of Pennsylvania Department of Medicine, Philadelphia, 1894, served on the staff of the Bryn Mawr (Pa) Hospital, died May 10, aged 88, of arteriosclerosis and prostatic hypertrophy with uremia

Morrow, James S, St Joseph, Mo , Ensworth Medical College, St Joseph, 1908, died in the Missouri Methodist Hospital May 21 aged 83 of cerebral hemorrhage

Morrow, Samuel Jerome ⊕ Inman, S C , Medical College of South Carolina Charleston, 1927, for many years served as surgeon for the Southern Railway, on the staff of the Spartanburg (S C) General Hospital charter member of the Inman Rotary Club, died May 7, aged 56 of coronary thrombosis

Nolte, Willis Clever, Nampa, Idaho, Northwestern University Medical School, Chicago, 1904, an associate member of the American Medical Association, died in Boise March 20, aged 77, of multiple myeloma

Norris, Maurice N ⊕ Los Angeles, University of Minnesota Medical School Minneapolis, 1922, died April 13, aged 61

Nuzzo, William Benjamin ⊕ Albany, N Y , Tufts College Medical School, Boston, 1931, veteran of World War II, member of the staffs of the Veterans Administration and Child's hospitals, died May 26, aged 50

Old, Herbert, Philadelphia, University of Virginia Department of Medicine, Charlottesville, 1895, an associate member of the American Medical Association, retired medical director of the Provident Mutual Life Insurance Company, died May 24, aged 85, of coronary thrombosis

Onorato, Victor Anthony, Buffalo, Fordham University School of Medicine, New York City, 1919, died in the Sisters Hospital May 26, aged 62

Peus, Carl Joseph, San Fernando, Calif , Universitat Leipzig Medizinische Fakultat, Saxony, Germany, 1925, associated with the Veterans Administration Hospital, where he was chief of the radiology division, service member of the American Medical Association died April 6, aged 57

Prince, Frank Joseph, Stevensville, Mont , Medical College of Ohio, Cincinnati, 1907, died May 21, aged 84, of cerebral hemorrhage

Ray, James Taylor, San Francisco, College of Physicians and Surgeons of San Francisco, 1910, served on the staffs of St Luke's and Franklin hospitals, died in Happy Camp, May 21, aged 70, of myocardial infarction

Reidel, Christian Francis ⊕ Syracuse, N Y , Syracuse University College of Medicine, 1914, served on the staff of St Joseph's Hospital, died May 18, aged 68, of acute coronary occlusion

Roberts, Francis LeRoy ⊕ Corona, Calif , State University of Iowa College of Medicine, Iowa City, 1935, member of the Iowa State Medical Society, formerly practiced in Spirit Lake, Iowa, died May 20, aged 63

Rolph, William Donald ⊕ National City, Calif , Cornell University Medical College, New York City, 1914, veteran of World War I, past-president and a charter member of the National City Kiwanis Club, died in Scripps Memorial Hospital, La Jolla, May 25, aged 68

Root, Charles Theodore ⊕ Jacksonville, Ill , University of Michigan Homeopathic Medical School, Ann Arbor, 1914, member of the American Society of Anesthesiologists and the American Trudeau Society, veteran of World War II, died in the Veterans Administration Hospital, Ann Arbor Mich , April 10, aged 74, of myocardial infarct and coronary arteriosclerosis

Rosenberg, David, Oakland, N J , University and Bellevue Hospital Medical College, New York City, 1934, service member of the American Medical Association, formerly associated with the Veterans Administration, died April 28 aged 60, of coronary heart disease

Selby, Paul Norman, Boston, Tufts College Medical School, Boston, 1956, intern, Beth Israel Hospital, was killed in an automobile accident May 23, aged 25

Selman, Ralph Jackson, Ottumwa, Iowa, Keokuk (Ia) Medical College, College of Physicians and Surgeons, 1908, an associate member of the American Medical Association, member of the American Academy of General Practice, veteran of World Wars I and II, associated with Ottumwa Hospital and St Joseph Hospital, where he died April 26, aged 70, of acute coronary occlusion

Smith, William Alexander, Boyd, Wis , Trinity Medical College, Toronto, Ontario, Canada, 1902, served on the staffs of the St Joseph's Hospital, Chippewa Falls, and Sacred Heart Hospital, Eau Claire, died in the Luther Hospital, Eau Claire, April 25, aged 78, of heart disease

Street, John Paul, Minneapolis, University of Minnesota Medical School, Minneapolis, 1951, served on the faculty of his alma mater, member of the staff of the Veterans Administration Hospital, where he died April 28, aged 31, of subarachnoid hemorrhage

Turner, Dan Bonelle, San Antonio, Texas, Louisiana State University School of Medicine, New Orleans, 1945, member of the Industrial Medical Association, served as a major in the medical corps of the U S Air Force Reserve, died in the Brooke Army Hospital, Fort Sam Houston May 8, aged 35, of uremia and chronic bilateral glomerulonephritis

Volkhardt, Vida Redington, Palo Alto, Calif , University of California School of Medicine, San Francisco, 1899, died March 21, aged 82, of cerebral hemorrhage

White, Robert Frank, Pine Bluff, Ark , University of Nashville (Tenn) Medical Department, 1901, for many years surgeon for the Missouri Pacific Railroad while at Mc Gehee, died in the Davis Hospital May 20, aged 83, of cerebral thrombosis and cerebral arteriosclerosis

Williams, J Odell ⊕ Emporia, Kan , University Medical College of Kansas City, Mo , 1905, veteran of World War I, died May 7, aged 77

Willis, Raymond Shelfer ⊕ Dallas, Texas, Baylor University College of Medicine, Dallas, 1933, veteran of World War II, one of the founders of the East Dallas Hospital and Clinic, died April 27, aged 53

FOREIGN LETTERS

ARGENTINA

Argentine Pharmacopeia —Before 1898 the French Codex Medicamentarius was used as a pharmacopeia in Argentina, but in 1893 an Argentine Pharmacopeia was established by law The first edition was published in 1898, the second in 1921, the third in 1941, and the fourth in 1955 The pharmacopeias of various countries are gradually approaching a standard The last two editions of the Argentine Pharmacopeia have shown an increasing similarity to that of the United States

Hypoglycemic Sulfonamides —The Argentine Society of Diabetes sponsored a symposium on the pharmacological action of carbutamide and tolbutamide A study of more than 700 cases showed that both substances have a similar effect, but tolbutamide is better tolerated No deaths have been attributed to these drugs Good results were obtained in 70 to 80% of the obese diabetic patients over 40 years of age, many of whom did not require insulin On the other hand, results were almost always poor in patients with infantile or juvenile diabetes or in those with labile forms requiring insulin who fall into coma or acidosis when insulin is not given

Charity Hospitals —In 1922 the government, under the presidency of Bernardino Rivadavia, placed in the hands of a committee of women the task of organizing a charity society in Buenos Aires with the purpose of founding hospitals and asylums for the assistance of women and children who were sick and also indigent Later, similar societies appeared in other provinces The Peron government dissolved these societies, and all their properties were turned over to the Eva Peron Foundation They are now in the charge of the Ministry of Public Health and Welfare

Quackery —Miraculous properties are being attributed to various new products The bee royal jelly is being widely sold at a high price as a marvellous panacea, and some newspapers have printed sensational reports on the cure of cancer by prednisolone and other products Much less dangerous are the activities of some physicians who claim they can cure many diseases by acupuncture and make diagnoses by examination of the iris

AUSTRIA

Water and Electrolyte Excretion —At the meeting of the Vienna Society for Pediatrics in June, H Frischauf and E Zweymuller reported on the results of examinations in 10 children with exogenous obesity who showed an increased excretion of metabolic water, sodium, and chloride, whereas potassium was retained The bound water level remained unchanged The renal excretion of sodium was almost independent of the renal excretion of water An increased excretion of water took place through an increase of the insensible perspiration The nitrogen balance, negative at the beginning, was adjusted in the course of 10 to 14 days

Hyaline Membranes in the Lungs —At the same meeting, A Mann reported on 23 cases of hyaline membranes in the lungs of newborn infants This series represented 18 5% of the premature infants who died at the Vienna Pediatric Clinic in the years 1955 and 1956 The characteristic pathological triad consisted of extensive atelectasis, capillary hyperemia, and hyaline membranes, which appeared, when stained with eosin, as shining red bands attached to the alveolar walls and passages The course of the disease is marked by a "calm interval" in the first hours of life in which these babies are not distinguished from the normal ones Roentgenograms show that the disease begins with small spots on the lungs and progresses to the collapse of a single lobe or of a whole lung

Reestablishment of Intestinal Flora —At the same meeting, E Huber said he had treated 89 children, of whom 63 were nursing infants, for two and one-half years with Mutaflor (coliform bacteria preparation) This preparation contains an emulsion of living Escherichia coli and is given after antibiotics have destroyed the normal intestinal flora and after acute or chronic enteritis It cannot be given to unconscious children, patients with ileus, or patients with enteritis in the acute stage The results of the treatment were clinically and bacteriologically good

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in those with tuberculosis. The speaker believed that nephrectomy is performed too often in patients with renal tuberculosis.

Agranulocytosis After Treatment with Ethyleneimine Quinone.—At the meeting of the Vienna Society of Physicians on June 28, I. Schwert and R. P. Konigstein reported the case of a 59-year-old woman with inoperable carcinoma of the ovary with metastases to the omentum and ascites. Ethyleneimine quinone (E-39) was given intraperitoneally, intravenously, and orally after a temporary improvement following treatment with radium and roentgen irradiation. The ascites disappeared and the subjective complaints improved. A decrease of leukocytes from 3,300 to 1,050 within 24 hours was seen after a total dose of 610 mg. of the drug had been given. The drug therapy was discontinued, but the leukocyte count decreased to 400 within the next week and a high fever developed. Neither granulocytes nor juvenile cells could be detected by sternal puncture or in the peripheral blood. Full hematological and clinical recovery followed treatment with antibiotics and prednisolone. Treatment with E-39 was resumed and the patient was concurrently given prednisolone. No further decrease of leukocytes occurred.

Ultrasound Pictures.—At the same meeting, G. Keck stated that roentgenograms can be made by means of an ultrasonic lens. Such a roentgenogram is best obtained by a sound lens with an ultrasonic wave length of 0.38 mm. and a resolving power of 2 mm. in water and with a wave length of 0.23 mm. and a resolving power of 1.2 mm. when not in water. Whether useful pictures of the inner parts of the body can thus be obtained or not depends essentially on the behavior of the ultrasound with regard to absorption, deviation, reflection, and total reflection on the object.

Meningitis.—At the same meeting, E. Wodak stated that all patients with otogenous, rhinogenous, and post-traumatic focal meningitides should be operated on. In addition to the operation and by means of both spinal and suboccipital punctures in patients with severe disease, the speaker irrigates the sac of the cerebrospinal fluid with physiological sodium chloride solution. From 10 to 20 cc. of air and aqueous penicillin are injected intrathecally. At the first sign of improvement this therapy is discontinued. The speaker cautioned against the use of antibiotics without supervision by the otorhinologist. Especially when there is a suggestion of otogenous or rhinogenous complication, antibiotics should be given only after the condition has been thoroughly studied.

Cooperation Between University and Public Health Service.—At the second International Congress for Social Medicine, held in Vienna May 30 to June 2, P. Bonnevie of Copenhagen said that the medical school has the double task of training prospective physicians and promoting medical science. Governmental health activities are increasing throughout the whole world, due to the concept of social responsibility for public health. In listing health-promoting factors, the speaker included individual, social, private, and public measures for prophylaxis and general welfare, physical, mental, and cultural adjustment, education, and rehabilitation. Unfortunately, it is more difficult to elicit financial support for activities pertaining to sanitation than for a fight against a specific type of germ or disease. An important measure in every program of sanitation consists in directing the medical profession toward health and not toward illness. This can be accomplished through medical education, but its success depends on whether those responsible for such direction are active in practical health work. The instruction should not be merely theoretical but should be based on the instructor's concrete experiences. Education in public health is part of general medical education and is mostly limited to courses of short duration. Students who wish to become health officers should have the opportunity of taking a comprehensive postgraduate course. In some countries the ministry of public health takes care of this education, in other countries special schools do this.

Such a distinction of the postgraduate courses for physicians in public health has its risks, since the subjects taught might be considered as lying outside of the usual medical education program. The teaching of public health should be integrated with the rest of the medical course. This has been the case in Denmark for 50 years. The university institute for hygiene in Copenhagen developed its program from physiology, not from pathology. From the beginning, such subjects as nutrition, conditions of work and housing and school hygiene have been stressed. The director has always been a person who was both a professor in the university and a member of the board of health. Several laboratories of the public health service such as the National Laboratory for Vitamins and the National Institute for Occupational Hygiene are lodged in the university. Furthermore, the directors of the university departments of veterinary medicine and other technical departments are members of the board of health. In the course of time, the hygienic education of medical students has been extended. Social insurance is taught within the branch of legal medicine, epidemiology is taught with microbiology, prophylaxis is a part of all clinical courses, eugenics is part of human genetics, and dietetics is often combined with biochemistry. Introductory lectures on medical statistics are given in the first year of medical study. Thus an attempt has been made to make hygienic problems part of every medical specialty and to give the Danish physicians a broad concept of them so that the postgraduate courses in public health could be condensed to a length of only four months. In Denmark the number of health officers is limited as much as possible, to let all the general practitioners cooperate in the prophylactic and sociomedical work.

New Order in the European Faculties of Medicine.—At the same meeting, Prof. Dr. J. Stuchlik of Prague said that it was impossible to discuss thoroughly the influence of the political attitudes and policies on European universities. Even a science supposedly as "unpolitical" as medicine is no exception. The main purposes of a faculty of medicine are education and research. Changes in the pattern of research in recent years include the fact that much medical research is now being conducted, not by universities but, by industries. This is especially true in chemistry and pharmacology. Furthermore, much research in biology and physiology is now done in nonuniversity hospitals. With regard to teaching in some countries, there are no longer any faculties of the whole of medicine, but there are special professional schools with different limits which still might be called faculties in some places. For example, there are faculties of therapeutics, pediatrics, and preventive medicine that are independent of each other, having their own curriculum and a duly limited field of activity of their fellows. In other countries, postgraduate education is carried on in institutions separated from the university. The role of the undergraduate school thus loses importance. The formal part of education in the specialties and the conferring of degrees has been taken from the university faculties and given to academies and ministries. The basic sciences and philosophy are neglected intentionally in some places, or they are taught more or less dogmatically.

Teaching Hygiene and Preventive Medicine in Finland.—At the same meeting, Prof. Dr. W. Lojander of Helsinki said that, although clinical medicine is still more attractive to most students, interest in preventive medicine is increasing. Incomes of physicians in this field are much lower than those of clinicians, but steps are being taken to improve the pay of health officers. In the last decade the medical school of the University of Helsinki has added courses in social medicine and public health. In recent years, between 100 and 120 students, yearly, have taken the special course in public health. Owing to the increasing importance of social medicine and the Finnish regulations on the medical profession which oblige the district physician not only to care for the sick but to protect the health of the well, there is a growing interest in preventive medicine. The public is beginning to realize what some physicians have long understood—that a nation's most important capital is neither gold nor goods but health and productive power. The people with the most and the best hospitals are not as healthy as the people who have the least need of them.

BRAZIL

Alterations of Mycobacterium Tuberculosis.—Brandi and Lopes reported to the Associacão Paulista de Medicina on a study of 114 strains of Mycobacterium tuberculosis isolated from 61 patients treated with various tuberculostatic drugs in about a year in a sanatorium. The number of strains resistant to one or more units of isoniazid was about twice that of sensitive strains. The number of strains of standard virulence but showing resistance (30.7%) was lower than the number of sensitive strains of identical virulence (52.7%). This loss of virulence was directly proportional to the increase in resistance, but an important fact was the entire absence of standard virulence in all R-100 strains. Some avirulent strains or strains of low virulence showed an appreciable sensitivity even to total dosages as low as 72 Gm. of isoniazid, but this phenomenon was not observed in relation to streptomycin. The study of the relationship between the amount of the drug given, the titer of the sensitivity to isoniazid, and the virulence to guinea pigs showed that up to 13 Gm. there was a predominance of sensitive strains of standard virulence. Increasing amounts of the drug gradually produced a reversal of that tendency, causing the appearance of larger numbers of sensitive strains of low virulence. Nevertheless, sensitive strains may persist even with large amounts of the drug. The negative activity in the presence of catalase was the only test that showed a relationship with the resistance to isoniazid, a clear relationship being observed with the virulence to guinea pigs only with the strains of very low virulence, since the number of catalase-negative cases was significantly larger than that of catalase-positive ones. The study of the general evolution of the tests of sensitivity to the drugs, of the virulence to guinea pigs, and of activity in the presence of catalase of the bacilli isolated from the same patients showed a certain margin of disagreement between the several tests, making it impossible to establish an exact relationship between the tests.

Otitis and Mastoiditis.—Marone and Calabria (*Rev. Hosp. clín.* 12:145, 1957) studied 172 patients with otitis and mastoiditis; 22 had acute suppurative otomastoiditis, 75 had simple chronic otomastoiditis, and 75 had chronic cholesteatomatous otomastoiditis. Because of the importance of its pathology and its complications, the authors gave the age distribution of the patients with cholesteatomatous otomastoiditis: 15 patients were infants to 2 years old, 10 were 3 to 6, 14 were 7 to 13, 16 were 14 or over, and in 20 the age was not recorded. Among those with acute otomastoiditis there were two cases of meningitis, and two of facial paralysis. In one child of 12 years a retroauricular abscess developed. This patient was first treated with small doses of sulfanilamide and later subjected to radical mastoidectomy; a subdural abscess formed and the child died. Of the 75 patients with simple chronic otomastoiditis, there was a case of meningitis and a case with fatal termination not well explained. Among the 75 cases with cholesteatomatous otomastoiditis, there were three cases of meningitis, two of cerebral abscess, two of encephalitis, and one of facial paralysis due to cerebral abscess. Two patients in this group died. With the improvement of the therapeutic methods there was a sharp decline in complications in recent years. No patients with the acute form of the disease were seen after 1954, and the incidence of the other two forms has shown a steady decline.

Lithiasis and Stenosis of the Common Bile Duct.—Dr. Alfredo Wazen (*Rev. brasil. cir.* 33:251, 1957) reported a series of 23 selected cases of lithiasis of the ductus choledochus, some simple and some associated with stones in the gallbladder. Among the latter, nine were residual, including six cases in which the diagnosis was made by means of postoperative cholangiography. Pribam's method was used five times with one failure, which necessitated a second operation. Six patients had stenosis of the duct, and three of them developed the condition after operative trauma Among the operations performed, there were one resection and terminoterminal anastomosis of the ductus choledochus (with excellent result), one hepatoenterostomy (with good result), and two attempts at fistulo-anastomosis (one patient died and one had a poor result) Of two patients with stenosis of Oddi's sphincter, one had pancreatitis which was cured and the other, in whom the radiologic findings continued the same without any subjective complaint or objective manifestation for four months, was still under observation and apparently well The author stressed the diagnostic value of roentgenography in the absence of jaundice Choledochotomy is mandatory when the common bile duct is found dilated and thick, the cystic duct is dilated, stones are felt, and the gallbladder is scleroatrophic The author closes the choledochotomy about a T-tube which is used for the postoperative cholangiography and is left occluded for two or three days to observe the occurrence of pain, a phenomenon which indicates that the tube should not be removed

Due to antibiotics, duodenotomy does not increase the operative risk The author performed this operation six times without accidents Strictures of the common bile duct are a matter of serious concern The congenital ones, when not treated by surgery, do not permit a survival over seven months Operative injury causes most of such strictures and is easily overlooked It is important to identify the cystic artery and the cystic duct before ligation The best treatment is end-to-end anastomosis using nonabsorbable sutures on a branch of a Kehr s tube, which is not removed before six months In certain cases, a palliative short-circuit is mandatory choledochoduodenostomy and choledochojejunostomy Anastomosis of the hepatic parenchyma and the jejunum was performed in one patient with common duct strictures in whom end-to-end anastomosis was not feasible The patient was living and well when last seen Grafts are not dependable and should be abandoned

CANADA

C M A General Council Meets—The General Council and Executive Committee of the Canadian Medical Association has created a department of medical economics or economic research at C M A headquarters The original idea was to have this department headed by a physician, but it may be necessary to recruit a lay economist for the job The department will have the task of collecting data from provincial medically sponsored health insurance plans, analyzing and evaluating the data, and making the results available to the profession It is intended that this department shall be of practical value and not concerned with academic problems Much useful statistical material is buried at the provincial level A study will also be made of the principles of job evaluation as they apply to the economics of the Canadian medical profession This is obviously a long-term study, and the first part will attempt 'to set up a listing of medical procedures so that the relative value of each will reflect the difference in degree of the medical responsibilities involved " This will require much work at the national and provincial levels and will call for the collaboration of the new department of economic research

One resolution of council was probably inspired by the plight into which the British Medical Association has gotten with its government Mindful that their British colleagues have no effective medium for arbitration in the National Health Service, the council added to its statement of principles respecting health insurance the following principle "No doctor or group of doctors should enter into an agreement respecting remuneration for professional services with any governmental semi-governmental, or non-governmental body, without prior assurance of a recognized system for the arbitration and negotiation of issues such as remuneration and terms of service " The likelihood that a national hospital insurance scheme is just around the corner led to two other positive steps First, a strong advisory committee to the federal government was appointed with the understanding that this committee was to be the sole negotiating body and spokesman for the C M A with the federal government or its departments It is hoped that with the cooperation of L'Association des Medecins de Langue Française, representing most of the French-speaking physicians of Canada, a united front can be presented to the government in contrast to the disastrous situation in England where more than one body has claimed the privilege of negotiating for parts of the profession Second, there was much debate on the possibility of preparing a plan for comprehensive hospital services, diagnostic services, and physicians' services based on the principles of prepaid insurance approved by the association, presumably as a counterblast to any plan that might be evolved by government advisers outside the profession It was finally agreed that a committee should review the statement of principles in order to indicate methods of implementing them in health insurance

A matter of some significance to the United States is the decision of the council to implement an all Canadian program of hospital accreditation from Jan 1, 1959 Hitherto, Canada has been represented on the Joint Commission on Accreditation of Hospitals, whose headquarters are in Chicago, and has also run a Canadian Commission on Hospital Accreditation The following are several reasons why Canada should proceed alone 1 Canada is large enough and well enough organized to run its own program 2 It is better able to work with hospitals whose administrators speak French and with whom correspondence and negotiations must be carried out in French 3 It needs to have available such information, arising out of hospital inspection, as data on specialty training and intern training facilities 4 The intervention of provincial and national governments in hospital affairs makes an all-Canadian program desirable Therefore, the Canadian Medical Association, the Canadian Hospital Association, the Royal College of Physicians and Surgeons of Canada, and L Association des Médecins de Langue Française will operate a voluntary accrediting agency from the end of 1958, maintaining, however, friendly liaison with the United States Joint Commission and, at first, using the same standards.

The Committee on Medical Education rejected a suggestion for the establishment of a single postgraduate medical school in Canada and also the idea that the C. M. A. should play a part in the inspection of medical schools. The Committee on Maternal Welfare called for a total ban on the manufacture of preparations containing apiol, which is apparently being used as an abortifacient with occasional disastrous results. The Committee on Pharmacy introduced a resolution to the federal government that the newer tranquilizers be obtainable on prescription only.

Rheumatic Diseases.—In June, the Royal York Hotel, Toronto, was headquarters for the Ninth International Congress on Rheumatic Diseases. Smith (West Point, N. Y.) and Lockie (Buffalo) both believed gold therapy to be the treatment of choice in patients with rheumatoid arthritis. West (Sheffield, England) considered that adrenal stimulation with corticotropin was practically and theoretically superior to that with cortisone or analogous steroids in treating this disease. Currie (Glasgow, Scotland) uses subtherapeutic doses of steroid combined with subtherapeutic doses of pyrazoles and salicylates for rheumatoid conditions. Coste (Paris) believed prednisone to be the drug of choice in acute rheumatism. Riedl (Prague) reported beneficial effects in acute rheumatism from the anticoagulant drug, ethyl biscoumacetate (Pelentan). Gil (Mexico) considered steroids to be more effective than the salicylates in preventing cardiac complications in acute rheumatism. Traut and Thrift (Chicago) denied that therapeutic benefits from salicylates were due to an adrenotropic effect. Lafond and co-workers (Montreal) found phenylbutazone of value in osteoarthritis, particularly in monarticular forms affecting the knee. In most cases, rheumatic spondylitis also responded well to this drug. Patients with a variety of other orthopedic conditions, including osteitis deformans, gout, bursitis, and myositis, were also benefited by it. The effective dosage is lower than that generally used, and the drug is not curative but only palliative. Hart (London) stated that cortisone and aspirin gave similar results in patients with rheumatoid arthritis. Santamarina and co-workers (Havana) showed that, in general, the effects of prednisone or prednisolone were much the same whether the drugs were given intramuscularly or orally.

Brochner-Mortensen (Copenhagen) presented a follow-up study of 50 patients with rheumatoid arthritis treated with steroids for up to seven years. Eight did not respond, 8 had severe side-effects, and 27 were still being treated. Of the latter, 20 were able to work and only 1 was totally incapacitated. Slocumb (Mayo Clinic, Rochester, Minn.) described hypercortisonism in rheumatoid arthritis treated with steroids; this complication of therapy may include periarteritis nodosa, lupus erythematosus, and swings of mood from agitation to fatigue (likeliest seen in withdrawal periods or times of irregular administration). Batterman (New York) believed sesame oil to be responsible for many of the untoward reactions to gold therapy. Bunim (Bethesda, Md.) gave an alarming picture of the limitations of prednisone therapy in rheumatoid arthritis. There was a 24% incidence of peptic ulcer, and some deaths were attributable to the steroid in a series of 36 patients treated for up to two years. A daily maintenance dosage of 15 mg. should be the maximum. Another speaker recommended 10 mg. daily for men and 7.5 mg. for women and claimed a lower mortality and morbidity than that claimed by Bunim. Bagnall (Vancouver) was pleased with the results of the use of 0.5 Gm. of chloroquine daily for indefinite periods in patients with rheumatoid arthritis and spondylitis. Only 17 of 125 patients were unable to continue because of nausea or dermatitis. A possible alternative is hydroxychloroquine. Bruckner (Bucharest) confirmed the good effect of synthetic antimalarials; he had good results in 32 of 36 patients. Rinehart (Wheeler, Ore.) also praised use of chloroquine. Fischel (New York) advocated a combination of steroids and salicylates in acute rheumatism, but Milcu (Bucharest) combined an antithyroid drug with either the steroid or the salicylate. Barcelo (Barcelona) stated that phenylbutazone and prednisone acted synergistically in patients with rheumatoid arthritis.

In prophylaxis for gout, Talbott (Buffalo) recommended probenecid with colchicine; Gutman (New York) agreed that most chronic gouty arthritis can be prevented by probenecid and a salicylate, and Serre (Montpellier) found probenecid and phenylbutazone best for patients with chronic gout. Ogryzlo (Toronto) made a comparative study of uricosuric agents and found 4-(phenylthioethyl)-1, 2-diphenyl 3, 5-pyrazolidinedione the most effective. Marson (Leeds, England) considered sodium salicylate better than probenecid in the treatment of chronic gout. Neustadt (Louisville, Ky.) believed it likely that desacetylmethylcolchicine would replace colchicine in the treatment of acute gout. Robins (Buffalo) found phenylbutazone the drug of choice in patients with rheumatoid spondylitis and gouty arthritis but warned that concomitant cardiac disorders should be an indication for careful selection, close observation, and control of fluid balance. Boni (Zurich) believed that the antirheumatic effect of this drug is due to a lowering of the action potential in muscles.

Ambros (Warsaw) showed that abnormal electroencephalographic changes in rheumatoid arthritis disappear with salicylate therapy. Meltzer (Philadelphia) believed that the incidence of peptic ulcer in patients taking prednisone was no higher than in other patients. Mizraji and Ramos (Montevideo) have been injecting hydrocortisone intrathecally in certain patients with lumbosciatic pain, as have Lucherini and Cecchi (Rome). The latter obtained good results with this treatment in 80% of their patients. Kelly (Melbourne, Australia) believed that phenylbutazone was a specific antirheumatic drug and most useful for prolonged therapy in small doses after careful supervision for the first three months. Controlled trials in Stockholm by Fjallstrom proved the value of phenylbutazone in active rheumatoid arthritis. For scapulohumeral periarthritis, Saiach (Argentina) preferred stellate ganglion block with intra-articular hydrocortisone. Elek

(Budapest) used these two methods with suspension of the patient by the neck and shoulders in a thermal bath

DENMARK

Hospital Scarlatina —In 1947, Dr T Jersild reported that treatment with sulfonamides had no effect on hemolytic streptococci, but that after only six days treatment with penicillin, a bare 4% of the patients with scarlatina still harbored streptococci Since 1947 every patient admitted with scarlatina to the Blegdam Hospital in Copenhagen has been treated with penicillin To ascertain what effect this treatment had on the incidence of scarlatina among the nurses of this hospital Jersild investigated the incidence of scarlatina in the hospital nurses in the period 1938 to 1956 (*Ugeskrift for læger,* June 6, 1957) In the past the number of hospital infections with scarlatina fluctuated with the number of the admissions to hospital, and the low rate of such infections in 1938, 1941, and 1946 corresponded to a low admission rate for scarlatina The hospital infections showed no reduction in number during the period 1941 to 1945 in spite of the maintenance of consistent treatment with sulfonamides In 1947 and 1948, when every patient with scarlatina was treated with penicillin, the number of nurses who contracted scarlatina came down from 21 (1944) to only one (1947) and none in the following years

Surgical Menopause —In the *Danish Medical Bulletin* for May, 1957, Dr A Leth-Pedersen gives an account of 201 women who underwent bilateral oophorectomy between the ages of 17 and 39 years Most of them suffered from salpingo-oophoritis or ovarian cysts Only 150 could be regarded as completely castrated All were subjected to a follow-up examination after an average period of 11 4 years Hormone treatment had been given to almost every patient with surgical menopause under the age of 40, but only about 10% of the completely castrated women had received adequate hormone treatment In about 15% of these women sexual life had improved after the operation, and there was a rise of only 13% in the number of frigid women in the period between the operation and the follow-up examination This rise was not higher than can be expected of Danish women in general in a similar age group This and various other considerations make it highly probable that castration has no biological effect on the adult woman's sexual feelings with regard to intensity or capacity for orgasm At least 15% of the completely castrated women experienced rhythmically occurring somatic and psychic symptoms corresponding to the premenstrual tension syndrome in spite of the absence of menstruation

Cholecystitis —During the six-year period from 1945 through 1950 a total of 272 patients with cholecystitis were treated at the Odense County Hospital This series was studied by Lyndrup and Kristensen (*Ugeskrift for læger,* June 13, 1957) Of the 194 patients given only conservative treatment, 9 died, whereas there were 7 deaths among the 28 patients who underwent emergency operation on imperative indications There was only one death among the 50 patients who underwent elective operations From 5 to 10 years after discharge from hospital, a follow-up investigation was made of 199 of these patients, 44% were symptom-free and 24% were in relatively good health The remaining 32% were in poor health or had undergone an operation later, 17% had undergone operations on the biliary tract after discharge It was concluded from this study that (1) all patients suffering from marked cholecystitis should be admitted to hospital immediately, at the onset of the attack, (2) if conservative treatment is started, the patient should be kept under close observation by an experienced clinician, and (3) an operation is indicated for all patients who have suffered from cholecystitis on one occasion and have a history of gallstones but important contraindications to an operation must be considered with this reservation, that such contraindications imply a greatly increased risk of complications in a subsequent attack of cholecystitis When there is no previous history of cholecystitis, more restraint should be shown in advising operation, but immediate admission to hospital is always indicated if there is a recurrence of symptoms

Hypertrophy of the Breast —A series of 222 women who underwent operations for hypertrophy of the breasts during the six-year period from 1947 through 1953 at the Bispebjerg Hospital was studied by Dr Erik G Christiansen (*Ugeskrift for læger,* May 30, 1957) While much is now known about the causes of growth of a normal breast, the cause of breast hypertrophy continues to be obscure Hitherto activities in this field have been confined to pathological and anatomic investigations and certain operations None of the 222 patients had any signs of endocrine disturbances, but determinations of the estrogen content of the blood showed significantly high figures when the hypertrophy was still progressive, whereas the figures were normal when the development of the hypertrophy had come to rest In about half the patients the hypertrophy had started with the onset of puberty, and about 25% developed during pregnancy The onset of puberty as indicated by the first menstruation was relatively early, and in about 25% menstruation had been more irregular than in a control series In 45 patients there were similar cases in the patient s family In most patients the development of the hypertrophy was gradual, whereas in 59 the onset was acute Christiansen concurred in the opinion of earlier observers that hormone disturbances are a factor in the pathogenesis of breast hypertrophy

National Association for Diabetes —The annual report of The Danish National Association for Diabetes for 1956 shows how varied its activities are In the last six years it has contributed more than 70,000 kroner to scientific research It publishes a journal, issued five or six times a year, with the object of keeping diabetics up to date about the many dietary precautions they have to take Each member of the association receives this journal free of charge In 1956 the association's convalescent home, Dyrehavehus, admitted 304 diabetics, 72 of whom came direct from a hospital In the same year 147 diabetic school children spent three weeks in the association's holiday camp, where they were taught how to live as good diabetics In another home 19 diabetic children, aged 2 to 14 years, from poor homes were housed and fed In the summer of 1956, the mothers of diabetic children under school age were given a 10 days' training at one of the association's centers

INDIA

Urinary Tract Infections —W R Bett (*Current Medical Practice* 1 4 [April] 1957) stated that, in spite of the use of sulfonamides and antibiotics, certain urinary tract infections prove stubbornly resistant, especially those caused by Pseudomonas aeruginosa and Proteus vulgaris Nitrofurantoin acts by interfering with the enzymatic metabolism of the bacterial cell Given by mouth it is effective against both gram-positive and gram-negative organisms and also certain protozoa It is the treatment of choice for P vulgaris infections Treatment should be continued for 5 to 7 days at least for 3 days after the urine has been sterilized but for not more than 14 days The course may be repeated after an interval of four weeks If there is no obvious improvement within a week, it should be discontinued Its side-effects are minimal, consisting mainly of nausea and vomiting It can safely be used even for children and pregnant women

Indian Physicians for Malaya —A three-man selection board from Kuala Lumpur, Malaya will come to India in July to recruit physicians for the Malayan health services One of the members of the board is the director of health services in the federation and another a member of its public service commission Over 1,000 Indian physicians have applied for these appointments which will be limited to a period of three years The number of posts advertised by the Malayan Government is 100

Saccharated Iron Oxide —B B Guha (*Indian M J* 51 5 [May] 1957) stated that, although giving iron by mouth produces satisfactory results in most patients with iron deficiency anemias and although this treatment is simple, economical, and devoid of any risks, some patients fail to respond Such patients may be given iron intravenously The incidence of untoward reactions of varying severity observed during intravenous treatment with iron has prompted caution in its use The reactions may appear during administration or as late as six hours after the injection The late reactions are rare and occur only when large doses are used In order to minimize the risk of these reactions the injection should be given slowly, the initial dose should not exceed 25 mg , and increase in dosage should be gradual till a dose of 100 to 200 mg is reached The iron solution should be diluted with 5% dextrose or the patient's blood Very old ampuls should not be used

Anemia and Liver Damage —P S Vasavada and co-workers (*J Indian M A* 28 342 [April 16] 1957) reported that anemia is a common finding in patients with chronic parenchymal damage of the liver Nutritional deficiencies, malaria, amebiasis, tuberculosis, visceral leishmaniasis, and chronic intestinal disorders may produce such damage The authors studied patients with such conditions to find out whether there are differences in the type and degree of anemia in those with primary liver disease and in those patients with diseases known to produce patchy liver damage A total of 70 patients with portal cirrhosis, infective hepatitis, amebic hepatitis, and hepatomegaly associated with chronic malaria, tuberculosis, chronic bowel disease, leukemia, and secondary carcinoma of the liver was investigated The liver function was assessed by thymol turbidity, cephalin flocculation, colloidal gold test, prothrombin response to vitamin K, urinary urobilinogen estimation, icteric index, and van den Bergh's test Half of these patients showed macrocytic anemia irrespective of the type of liver damage No correlation was observed between the degree and variety of anemia and the type and extent of derangement of liver function

Serum Cholesterol and Phospholipid Levels —H P Nath and co-workers (*Indian J M Res* 45 2, 1957) stated that there has been an increasing incidence of coronary disease in the armed forces of India in the last few years Among the factors studied, a change in the lipid metabolism, specially that of cholesterol metabolism, has been implicated most consistently in the pathogenesis of this disease Because of this close association of hypercholesteremia and coronary disease, the authors studied the cholesterol metabolism in normal Indians of various age groups, 25 men from each of the age groups 21 to 30, 31 to 40, 41 to 50, and 51 to 60 years were selected Each subject was examined to rule out the presence of any disorder likely to upset the fat metabolism Each group contained 15 nonvegetarians and 10 vegetarians Height, weight, chest and abdominal girth, serum cholesterol level, blood phospholipid level, and blood pressure were measured The cold pressor test was used to discover hyperreactors The total serum cholesterol content of the above different age groups was found to be 177, 195, 208, and 215 mg per 100 cc respectively These readings were almost the same as those reported for Europeans and Americans but were slightly higher than those reported by other workers for Indians The cholesterol level increased with age and weight but was not affected by smoking, alcoholic habits, or racial differences The average reading for nonvegetarians was 16% higher than that for vegetarians The ratio of total cholesterol to lipid phosphorus was almost the same for all age groups The lipid phosphorus content was slightly less in the 21-to-30 year age group The blood pressure readings in all the subjects were within normal limits, but 20 were found to be hyperreactors by the cold pressor test These 20 showed relative hypercholesteremia It would be interesting to know the incidence of coronary disease in these hyperreactors

Salmonella Typhi—M Savitri and co-workers (*J Postgraduate Med* 3 2, 1957) tested 663 Salmonella typhi strains (586 from Bombay, 70 from Amritsar, and 7 from Poona) for bacteriophage typing Ten of the 33 Vi bacteriophage types and subtypes were identified during this study The most common types in Bombay according to their decreasing order were A, O, E1, D1, J, K, T, D6 (single case), and 28 (single case) The most common types at Amritsar were A, D1, O, E1, T 28 F1 (single case), and K (single case) Attempts were made at identifying new bacteriophage types by adapting bacteriophage A on untypable Vi strains and were successful in two instances The two newly adapted bacteriophages and their homologous cultures were sent to Dr Felix, chairman of the International Committee for Enteric Phage Typing, London for confirmation Of the 54 untypable Vi strains isolated at Bombay, Amritsar, and Poona, 11 were found to react similarly to these new Vi bacteriophage types Attempts were also made to determine the parent strains from degraded Vi strain by plating out the culture and subjecting the isolated colonies to routine typing tests Antibacteriophage serums against bacteriophages I, II, and IV were prepared in rabbits for testing the purity of the specific bacteriophages and also of any bacteriophage that might be newly prepared by the process of adaptation of bacteriophage II to untypable cultures Thus in this study two new Vi bacteriophage types, namely 801 and 835, were discovered Type 801 was isolated from Bombay It was responsible for three cases of typhoid fever in Bombay Bacteriophage type 835 was isolated at Amritsar Further studies showed that Vi bacteriophage type 835 was responsible for six cases of typhoid fever in Bombay and one in Poona Due to lack of information, no link to a carrier in these cases at Amritsar, Bombay, and Poona could be established The study emphasizes the need for routine bacteriophage typing of S typhi, this would go far in helping to eradicate this common disease in India

Drug Combination as a Communication Facilitant—K J Bhaskaran (*J Indian M A* 28 10, 1957) stated that the uncommunicative patient has always been a problem to the psychiatrist Two of the drugs widely used to facilitate communicativeness are amobarbital and methamphetamine hydrochloride, used separately or in combination and usually by the intravenous route When amobarbital alone is used, the patient often falls asleep, and when methamphetamine is used alone, it often produces unpleasant side-effects These are much less severe when a combination of the two drugs is used The author used this combination on 40 uncommunicative psychotic patients Special attention was focused on the degree of relaxation, change of mood, degree of motor activity, degree of communicativeness, degree of rapport, and untoward side-effects The combination was most effective in psychoneurotic, depressed, pseudoneurotic schizophrenic, schizoaffective, and paranoid schizophrenic patients in that order Those with catatonic stupor showed limited or no benefit Those with marked anxiety were benefited much more than those showing limited or no anxiety Those who were originally communicative but later lapsed into a mute state were often helped by this combination No major side-effects were noticed except nausea, vomiting, and sleeplessness on the day of injection

Rural Medical Relief—A medical relief and public health camp was set up at Alamadi, about 15 miles from the city of Madras, by the Rural Medical and Social Service League of the Stanley Medical College Association Situated in the center of a cluster of villages, this camp serves a population of about 20,000 A dispensary is run every day at the camp between 3 and 6 p m, and public health work is undertaken in the mornings The camp staff of 55 includes 2 physicians 7 social workers, and 2 vaccinators A dentist visits the camp once a week Nutritional, general, economic, and family planning surveys have been made in seven villages and will be undertaken in eight more Multipurpose food and milk are supplied free to the people twice daily

JAPAN

Asian Influenza—An epidemic of influenza is spreading throughout Japan Although it is regarded as a mild type, many schools are closed down because 10% or more of the students are absent due to sickness Fear is felt that another wave of influenza of greater intensity will follow, because the so-called A type Tokyo strain confers only negligible immunity A vaccine should be available early in November The aged and infirm will be the first to receive the injections

Cancer—The Bureau of Public Health and Welfare reports that the highest death rate for 1956 was due to cardiovascular diseases and that cancer was a close second Pulmonary tuberculosis, formerly in first place, now ranks fourth Gastric cancer was the commonest type of cancer by far in both men (55% of the total) and women (36% of the total)

State Medicine—If our present system of socialized medicine continues, it will soon become bankrupt and the health and welfare of the people will be in jeopardy Although the hospital physicians are required to work for substandard wages, there is something even greater at stake If the 80 million people can be medically cared for under the present budget, the physicians of Japan will gladly make sacrifices but, unfortunately, standards of medical care have sunk to the lowest level in history Since 1950 the price of necessities has steadily climbed upwards, but for over six years the pay of physicians has remained the same They have repeatedly asked for revision of their pay scale, but nothing has been done Dr Edwin L Crosby, of the United States, was invited last fall to investigate the situation In his report he stated that all difficulties found in the way of socialized medicine stem from inadequate finances Specifically for each patient cared for the hospital receives $1 00 per day regardless of quality of care or cost of medication This rate has not been changed in the past six years

So long as the present difficulties remain unresolved, despite the sacrifices made by the hospital personnel Japan's medical advance will fall behind that of the rest of the world

NEW ZEALAND

Asian Influenza—The Auckland Medical Officer of Health reports that the Asian-type influenza has been kept at bay Although the number of cases for June was higher than that for May, it was much lower than that for June of either 1956 or 1955 It seems unlikely that the Asian influenza is present in Auckland in epidemic proportions No virus similar to the Asian strain has been isolated from any indigenous case Precautions have been adopted to check early cases among ship's crews It has been reported from Sydney, Australia, that more than 100 crew members of an Australian aircraft carrier caught Asian influenza while the carrier was in Hong Kong The medical officers on board said that the only reason Asiatics died from Asian influenza was because they were undernourished and their resistance to disease was low Among the crew members of the carrier, the disease appeared as a mild influenza lasting only two days The present epidemic of influenza sweeping through parts of Asia does not appear to be more serious than the usual epidemics that annually affect New Zealanders The present attitude of the New Zealand health officers is that there is no need for alarm

Closing of Tuberculosis Sanatorium—The Minister of Health has closed the Waipiata Sanatorium The reasons given were a dearth of patients, difficulty in maintaining a staff, and the fact that funds used to run the sanatorium could be better spent elsewhere About $600,000 a year (for a total New Zealand population of 2 million) is being spent by the health department in the campaign against tuberculosis If the total amount spent by the state through the hospital boards is included, the figure is about $3,000,000 a year As recently as 1952, 226 persons of European stock died from pulmonary tuberculosis In 1956 only 142 persons died The rates for these two years were respectively 12 and 6 9 per 100,000 population This laudable achievement was due to the improvement in therapy

Drug Bill—New regulations to control expensive prescribing under the provisions of the Social Security Fund and to control claims for the excessive number of general medical services provided by Social Security are in preparation The Minister of Health has released the report of a special committee set up to investigate pharmaceutical benefits under the Social Security Fund The committee found that over the period 1947-1956, while the population of New Zealand increased by 21 4%, the increase in the cost of pharmaceutical benefits amounted to 181% This increase was due principally to the rise in the number of prescriptions per person per annum and to the rise in the average cost of prescriptions Over this 10-year period the number of prescriptions per person increased by about 56% It was clear that people had been seeing their physicians more frequently each year The drug bill has mushroomed from $4,500,000 in 1948 to $12,000,000 in 1956 The trend is the more serious in that the cost increased 27% in a few months The committee examined in detail all the factors which were believed to have contributed to the rise in expenditure on these benefits, and, of these, the general rise in cost and the introduction of new and expensive methods of treatment in recent years were the principal factors The committee reported that a great saving might be effected by the remission of customs duty on items specified in the drug tariff It recommended that a charge on prescriptions be introduced at a flat rate for each prescription, exemptions to be granted on economic grounds rather than in regard to specific ailments, that regulations to control excessive prescribing and claims for an excessive number of general medical services be introduced, that the question of the desirability of improving the training of medical students in regard to prescribing be taken up with the authorities concerned, that surveys be carried out regarding the extent of telephone prescribing in large towns as compared with rural areas, and that efforts be made to discourage telephone prescribing

The fact that physicians are becoming more freely available has contributed to the increase in the number of services given per capita This, in turn, has increased the number of prescriptions issued An appreciable factor in steadily rising costs resulted, paradoxically from the success of modern scientific treatment New and effective drugs have become available for the treatment of conditions of formidable character and conditions liable to serious complications In the case of chronic diseases, the product used is often a substitute for some inherent deficiency and must be given regularly for the remainder of the patient's life In either case the cost of the drugs themselves is often high but must be thought of in terms of what is achieved in the alleviation of suffering and the reduction in loss of time from work The antibiotics which contributed largely to the most recent sharp rise in costs come under both headings There is no doubt, however, that they have been used unnecessarily and extravagantly in many cases An increased awareness of the Social Security charge and exaggerated notions about the part represented therein by pharmaceutical benefits has been noticeable in the attitude of many patients in recent years Such people often expect to be given prescriptions for simple household remedies, like aspirin, which a few years ago they would have purchased for themselves

Some basic proposals put forward by a group of Auckland physicians (*New Zealand Medical Journal*, Feb, 1957) for a reorganization of the service have not been accepted by the Central Medical Services' Advisory Committee The whole scheme put forward by these doctors was considered by the British Medical Association If necessary, the Minister of Health will arrange for the committee to consider the question again after the B M A 's recommendations are known The committee does not accept the central and most important feature of the group's scheme which proposed that the state pay $2 for each of the first 25 patients attended by physicians under the social security and 30 cents for each additional patient but that a physician whose optimum is higher than 25 patients should be able to choose the state's subsidy from one of several sliding scales and to review the optimum annually

Other facts to be considered are that the social security medical services are here to stay, that the public at large has come to demand an elaborate issue of free medicine, and that repeated appeals to the physicians and the mild forms of restraint so far applied have achieved little It is against this background that the onus is on the government to find a means of reducing the $6 per capita in relation to the resources available The biggest hope for a worthwhile improvement is in the introduction of a charge on prescriptions The argument for it is that a nominal charge—about 14 cents is the amount imposed for all prescriptions in Great Britain—would serve the double purpose of making prescription addicts think twice before badgering their doctors for refills or something new" and bring about a substantial saving in the total bill for benefits It can be forecast confidently, however, that the government will not implement the introduction of the flat rate for prescriptions It is understandable that the imposition of a charge in any form is an unpalatable political prospect, particularly in an election year Alternatively, the government will have to devise a scheme for supporting the "free medicine' bill

Experimental Aortic Surgery—Dr J Borne (*Proc Univ Otago med Sch* 35 6, 1957) reported that the ideal method of treating aortic regurgitation is competent vascular reconstruction in the ascending aorta, preferably proximal to the coronary arteries Pilot experiments on sheep showed the feasibility of placing an annular constricting suture around the aorta proximal to the coronary arteries but emphasized dangers in dissecting the coronary arteries and sinuses of Valsalva A specially designed forceps was used, the right coronary artery was approached by a sternal splitting incision, and a double no 4 silk ligature was passed beneath it The left coronary artery was approached by left thoracotomy, the ligature was brought around between the aorta and pulmonary artery in front, through the transverse sinus behind, and tied After this preliminary operation, 3 of 10 animals recovered Of the remaining seven, the operation was abandoned in two because of hemorrhage of the sinus of Valsalva Two died from injury to the coronary arteries, one from ventricular fibrillation, and in two the suture rode up and occluded the right coronary artery at its origin Although an annular suture can be placed around the aorta in sheep, it cannot be recommended in man because of the vulnerability of the right sinus of Valsalva and the right coronary artery and the tendency for the suture to ride up and occlude coronary circulation

Radioactive Fall-out—Suspicions that New Zealand is being subjected to abnormal radioactive fall-out through a possible pollution of the atmosphere by cumulative nuclear weapons tests have been aroused in R Borthwick and J Tait, physicists at the Christchurch Hospital By using the sensitive Well scintillation crystal, they traced what they believe to be an abnormal amount of decaying radon gas and something with a much longer half-life in rain water This observation, however, is not conclusive, as there is no New Zealand reference level of normal radioactivity determined by this method The use of the Well scintillation crystal is quite a different method from the electrostatic precipitation method by which the Dominion X-ray Laboratory had earlier monitored for radioactive dust in the atmosphere Mr Borthwick has concluded that something abnormal has come into the atmosphere, not as a direct result of the recent British nuclear weapon tests on Christmas Island in the Pacific, but by the cumulative effects of the many tests made in the last few years The effects, so far, are apparently not serious, but they could be There is now an international recommendation that rain water should be sampled for fall-out

SWEDEN

Spiritual Welfare of Hospital Patients—In the March 9 issue of THE JOURNAL, an account was given of an experiment recently made in a public Swedish hospital in which a clergyman wearing the robes distinctive of his calling was allowed to join the physicians in their hospital rounds On one such occasion a woman patient, whose surgical dressings had to be changed, made no complaint at the time but waited till she left the hospital, when she launched a campaign against what she considered an outrage and of which she furnished the sensational lay press with a harrowing description This incident led to questions being asked in the Swedish Parliament The Communist press gave a lurid account of clergymen masquerading as physicians, wolves in sheep's clothing, peeping Toms thirsting for a sight of naked limbs As a result what had seemed to be a promising experiment came to an abrupt end

Leptospirosis—Of the 40 serologically different types of leptospirosis, the one that has hitherto been most prevalent in Sweden has been leptospirosis icterohemorrhagiae (Weil's disease) At the Virus Laboratory of the Sahlgren Hospital in Gothenburg, serologic tests have been made for years as a matter of routine for leptospiral infections giving rise to serous meningitis In the autumn of 1952 this vigilance was rewarded by the discovery of two cases of leptospirosis with the Sejro type, named for a Danish island in which this type was first identified Describing these two cases in detail in *Svenska lakartidningen* for Feb 15, Dr Afzelius-Alm and co-workers pointed out that, though these were the first cases to be reported in Sweden, they did not necessarily represent a rare condition Both patients responded well to penicillin, but it is probable that most such cases end in spontaneous recovery after a short bout of fever It may be impossible by clinical examination alone to distinguish between a viral and a leptospiral meningitis, and only a serologic examination may confirm the diagnosis In the acute phase of leptospirosis serologic tests are likely to prove negative, and they may not be positive till the patient convalesces The impression that leptospirosis must lead to jaundice is so general that it is well to keep in mind the possibility of its absence, the clinical findings being those of an acute benign meningitis with absence of reflexes and paretic muscles suggesting an attack of acute poliomyelitis

Smoking Habits and Pulmonary Disease—Reference was made in THE JOURNAL for Jan 26 to an investigation by Dr B Ejrup into the capacity of injections of lobeline to break the tobacco habit His findings were so encouraging that they led Dr G Sterky (*Svenska lakartidningen*, May 3, 1957) to repeat his experiments on patients in a chest hospital The first step was to approach, by means of a questionnaire, 330 patients Answers about their smoking habits were obtained from 198 men and 80 women Many of them had already reduced their smoking of cigarettes by about half and wished to be able to smoke still less Thirty-eight patients volunteered to submit to subcutaneous injections of lobeline twice a day and for 10 days Of these, 20 were given lobeline and 18 received injections of an isotonic saline solution put up in ampuls indistinguishable from those containing lobeline Though Sterky's results were not as encouraging as Ejrup's, they were good enough to warrant repetition Nine of the 20 patients receiving lobeline reduced or stopped their smoking, but of 18 patients given the placebo the smoking habits of 13 were unaltered

Traffic Accidents—At the meeting of the Northern Surgical Congress in Stockholm in June an analysis of 20,000 traffic accidents was presented In 77% of these accidents the victims had been traveling at less than 60 km per hour (about 40 mph) In most of these cases the skull or patella had been fractured, and 30% of the patients were less than 20 years old Ambulances came in for searching criticism with complaints of noisy and reckless driving calculated to defeat the primary object of an ambulance service

Asymptomatic Tularemia—A curious feature of the 814 cases of tularemia reported during the period 1931 to 1956 is their almost complete concentration in two adjoining counties in Sweden In the summer of 1953, Dr O Ljung (*Svenska lakartidningen*, June 7, 1957) working in one of these counties studied atypical and abortive forms of tularemia by means of intracutaneous tests with dead Pasteurella tularensis Of 40 persons who had had tularemia 2 to 21 years earlier, 36 gave a positive skin reaction, whereas no positive reactions were observed in 131 persons living in areas in which tularemia was unknown On the other hand, in the two tularemia-infested counties, positive reactions were obtained in 227 of the 2,047 persons who were never known to have suffered from tularemia This suggests that abortive and asymptomatic forms of tularemia may be common in tularemia-infested areas As the intracutaneous reaction may continue long after the original infection, positive reactions do not mean that a patient is suffering at the time from an attack of the disease Though little is yet known about the incidence of tularemia throughout most of Sweden, it is clear that at least 10% of the adult population of a tularemia-infested area give positive reactions to intracutaneous tests

UNITED KINGDOM

Influenza Vaccine—In November, 1951, the Medical Research Council set up a committee to arrange clinical trials of influenza vaccine The committee has made its third progress report based on trials conducted between 1954 and 1956 (*Brit M J* 2 1, 1957) In the winter of 1954-1955, serologic and field trials of three virus A influenza vaccines made from the strain A/Eng/1/54 were carried out One vaccine was a saline egg-line vaccine with aluminum phosphate, and the other two were emulsified vaccines made from egg-adapted and mouse-adapted viruses The control was a virus B vaccine (Lee strain) The antibody response was maximal within a month in persons inoculated with the saline vaccine and in three months after inoculation with the emulsified vaccines, although in the latter case it reached a higher value The mouse-adapted emulsified vaccine gave a lower antibody rise than the egg-line vaccine Antibody levels were higher one year after inoculation than they were before the vaccine had been given A field trial of these four vaccines was carried out on 14,708 volunteers in 69 industrial communities The incidence of influenza was low and was mainly influenza B The absence rate due to influenza was practically the same in each vaccinated group and ranged from 5 0 to 5 8% In a follow-up of the 12,890 persons who remained in the same employment in 1955-1956, the absence rates ascribed to influenza were again low, and no difference was detected between the four groups

In 1955-1956 a further serologic and field trial was made with two saline vaccines (a monovalent one from the strain A/Eng/19/55 and a polyvalent one from strains PR 8 and FM 1 and swine) with virus B vaccine as the control The monovalent vaccine increased the antibody titer in volunteers 30 years old and over to a uniform level against all the viruses used, except the 1956 strain To its own antigen, an exceptional response occurred In volunteers 25 years old and under, the result was similar except that a lower response to swine virus occurred The general effect of the polyvalent vaccine was to reinforce the antibody levels present before inoculation A vaccine made from a strain from a virus isolated in 1956 produced lower levels than any other vaccine These three vaccines were administered to 7,495 volunteers in industrial areas and to 5,278 from the Royal Air Force Significantly smaller absence rates from influenza occurred in those volunteers vaccinated with the A vaccines than in those vaccinated with the control vaccine The advantage of the A vaccines over the B vaccine was most apparent during the period when influenza A was prevalent Protection given by the monovalent virus A vaccine was of the same order as that provided by the polyvalent vaccine The saline virus A vaccine used in the 1954-1955 trials caused an excessive number of general and local reactions as compared with other vaccines A small number of more serious and often delayed local reactions occurred in 0 2 to 0 5% of those who received the emulsified vaccines

The Public Health Laboratory Service reported to the Medical Research Council on the state of influenza in the United Kingdom between 1953 and 1956 Morbidity and mortality statistics taken in conjunction with laboratory results show that no severe epidemic of influenza occurred in the United Kingdom in this period though influenza B was prevalent in most parts of the country in the winter of 1954-1955, and influenza A was prevalent in the winter of 1955-1956 Localized outbreaks and sporadic cases of influenza A were detected fairly often in the first half of 1954 and 1955, and sporadic cases and minor outbreaks of virus B infections were detected in the late winter of 1953-1954 and less frequently since the large epidemic that followed Most of the virus A infections in 1953-1956 were probably due to virus of the Scandinavian group Influenza virus B strains isolated during the 1954-1955 epidemic differed antigenically from earlier strains of this group The frequency with which respiratory illnesses associated with influenza A and B infections were detected between epidemics suggests that both infections are endemic in Great Britain

Age for BCG Vaccination —The age recommended for giving BCG vaccine to children is 13 years, but Pollock (*Brit M J* 2 20, 1957) questions whether this is the optimum age Using the Registrar General's reports, he investigated the morbidity from tuberculosis among children below the age of 14 and found that a substantial number of school children have already been infected with tubercle bacilli when they reach this age The annual number of new cases reported in children under 14 is 5,122, which corresponds to an infection rate of 1% of the existing population of school children This figure does not take into account the undiagnosed and unreported primary cases which are estimated from mass radiography surveys to be 22 per 10,000 persons in the age group under 14 or three to four times the number reported A primary tuberculous lesion causing minor or no symptoms and remaining undiagnosed and unreported in childhood may produce high morbidity later At between 5 and 10 years of age, the immediate dangers of primary tuberculosis are less than at other periods of life, whereas puberty and adolescence are periods of relative danger Pollock therefore believes that children should be protected by vaccination before the age of puberty The available evidence suggests that protection by BCG vaccination is prolonged and he therefore thinks that vaccination at 10 rather than 13 years of age would give the greatest possible protection He does not advise the vaccination of infant noncontacts, because this entails interference with the tuberculin test, which is so useful in case finding and epidemiologic studies

Attempted Suicide with Tranquilizing Drugs —Douglas and Bates (*Brit M J* 1 1514 [June 29] 1957) reported the case of a woman who consumed 290 25-mg tablets (7 25 Gm) of chlorpromazine Within an hour she was drowsy, confused, ataxic, and in shock Her stomach was washed out and 60 mg of methamphetamine hydrochloride was given intravenously and repeated one hour later, 500,000 units of penicillin was given every six hours, and 0 6 mg of atropine and picrotoxin were also given After a stormy period of three weeks the patient recovered Congestion and effusion of the lungs occurred in spite of the use of penicillin Heberden and Cooper reported, in the same issue, the case of a 30 year-old man who attempted suicide with meprobamate He took 8 Gm as a single dose one night and the next morning was found unconscious, with low blood pressure flaccidity of all limbs, and absent tendon reflexes He appeared to be in a state of hibernation with muscular relaxation and complete depression of the central nervous system After gastric lavage and an intravenous injection of pentylenetetrazol (Leptazol) he recovered and was normal by the next day

Anti-Deafness Drive —The Ministry of Health, in co operation with the medical profession, has launched a drive against deafness A memorandum sent to more than 20,000 family physicians states there are about 115,000 severely deaf and 1,659,000 moderately deaf people in Great Britain Many diseases that cause deafness are preventable and others are remediable if treated vigorously and early enough In other conditions, the worst effects could be mitigated by special training and the use of a hearing aid Ear, nose, and throat disorders accounted for the largest number of rejections from military service This indicates that many young people are either not seeking treatment soon enough or not persevering with it The family physician can do much to prevent this state of affairs The memorandum has been approved by the Central Health Services Council and distributed to physicians by local executive councils of the National Health Service

Smoking and Lung Cancer —In its annual report for 1955-1956, the Medical Research Council devotes a section to a review of the relationship between smoking and lung cancer This is the first occasion on which the council has expressed an opinion on the subject, and an abbreviated version of this section was distributed to the medical and national press This version was accepted by the government as a basis for taking action to draw the attention of the public to the dangers inherent in cigarette smoking The council believes that, so far, no adequate explanation of all the evidence indicating an association between cigarette smoking and cancer of the lung has been advanced except that of direct cause and effect and that smoking is, indeed, an important factor in the causation of the disease From the physical and chemical points of view, there is nothing inherently improbable in this interpretation Discrepant findings concerning the production of skin tumors in mice by applying cigarette smoke tar are not altogether surprising Tobacco smoke is a most complex mixture About 100 constituents have been identified with greater or lesser degrees of certainty There must be many more not yet identified, and the composition of the smoke may be expected to vary with the type of tobacco, the method of smoking, and the temperatures attained by the burning of tobacco In view of the equally discrepant findings on 3,4-benzpyrene, it may be supposed that a case was made out incriminating this carcinogenic substance in tobacco smoke as a causative agent in lung cancer, but closer examination leads to the conclusion that this supposition is not proved The amount of 3,4-benzpyrene in the smoke from 100 cigarettes is about one thirty-millionth of an ounce, about one-fifteenth of this probably comes from the paper and the remainder from the tobacco Even though this substance is known to be a powerful cancer-producing agent, there is no certainty that it is harmful in such low concentration Another weakness in the evidence lies in the nature of the biological test The fact that a given material will produce skin cancer in mice or rabbits is far from being presumptive evidence that the same material can cause lung cancer in man

Many factors, other than tobacco smoke, also are undoubtedly capable of producing lung cancer in man At least five industrial hazards have already been recognized and there is evidence that there may be others Studies of air pollution that suggest an association with lung cancer have been reported Stocks and Campbell, for instance, showed that most deaths from lung cancer in the semiurban and rural areas outside Liverpool can be attributed to smoking, but in Liverpool itself about 38% of the cases may be due to some other factor such as a general atmospheric pollutant Doll and Hill's data, on the other hand, failed to show any evidence of a substantial difference in the risk among nonsmokers in Greater London and in rural areas The particular kinds of atmospheric pollution suspected as causes of lung cancer are exhaust fumes from gasoline engines and diesel engines, as well as smoke from chimneys Again, the evidence is conflicting, and the council notes the suggestion of R L Cooper (1953) that the solvent action of some of the known constituents of tobacco smoke might remove the 3,4-benzpyrene from the soot deposited in the lung and bring it into intimate contact with the tissues In this way, the tobacco smoke and the atmospheric pollution could reinforce one another Or it may be that the additive effect of these various sources of cancer-producing substance (which is not necessarily entirely, or even mainly, 3,4-benzpyrene) is sufficient to turn the scale and produce cancer when one of these sources alone would be harmless On the day after publication of all this information—and the national press let themselves go on the subject—the shares of the leading tobacco company on the stock market showed a slight rise

The publication of the Medical Research Council report was immediately preceded by the publication of the first annual report of the tobacco manufacturers' standing committee The main points in the manufacturers' report are the following In the main-stream smoke from British cigarettes, smoked under normal conditions, 3,4-benzpyrene is present to the extent of about 3 to 5 mcg per 500 cigarettes This is equivalent to about 0 2 ppm by weight in the smoke or 0 01 ppm by weight of the tobacco smoke consumed The cigarette paper contributes, at the most, only about 10% of the benzpyrene found in the main-stream smoke From a limited series of experiments, it appears that pipe smoke contains at least as much benzpyrene, weight for weight, as cigarette smoke The daily intake of benzpyrene from breathing the air in a west country town was equivalent in total volume to the intake from smoking about 40 cigarettes a day, that from breathing London air is equivalent in total volume to the intake from smoking about 100 cigarettes a day Extensive research failed to confirm the claim that cigarette smoke contained about 1 part of 1,2,5,6-dibenzanthracene per 10 million parts of tobacco smoked The average arsenic content of British cigarette tobacco, in 1956, was only 7 ppm This means that the arsenic inhaled by a cigarette smoker today is not more than 0 3 ppm of tobacco smoked

In reference to published work on the subject, Sir Ronald Fisher said that from the point of view of experimental design the observations must, at this point, be criticized severely in that there has been no random experimental evidence such as is needed when dealing with flies or rats in drawing inferences of causation The smoking classes are self-selected No studies have been made as to what external or internal causes are effective in determining whether a subject shall be a nonsmoker, a pipe smoker, a cigarette smoker, or a cigar smoker We ought to be clearly and explicitly aware either of the principal causes in this field or of our ignorance of what causes are in action It would be incredible to assert that these smoking classes are not systematically different, at least in respect of genotype if not also in respect of environmental exposures not irrelevant to the subsequent incidence of cancer The importance of genotypic differences is familiar to workers in cancer research in mice and has been emphasized in man by recent findings of the association of blood-group A with cancer of the stomach In this case, it happens that an easy serologic test distinguishes the one class of genotypes from another, and the case makes it probable that any other genotypic separation, whether we can recognize it or not, would also be associated with different rates of cancer incidence

WORLD HEALTH ORGANIZATION

New Influenza Virus—The new virus responsible for the present widespread influenza epidemics in Asia has now been imported into the Netherlands, Australia, and possibly San Francisco, although this has not yet been proved by laboratory tests It is officially classified as virus A/Singapore/1/57, because it was first identified by laboratory tests in that city All reports continue to stress that the disease caused by this virus remains mild, running its course in about one week Very few deaths have been proved to be due to this cause, and these were mostly among elderly people suffering from chronic bronchitis There is still no specific cure for influenza, as the virus does not respond to antibiotics or other treatment, but penicillin and similar drugs remain the weapon of choice against such complications as pneumonia which may arise in the course of the disease In order to prevent further outbreaks of this new type of influenza, vaccine is being produced in several countries starting from virus specimens collected and distributed by the World Health Organization (WHO) to its 57 influenza centers in 46 countries The work is coordinated by WHO's World Influenza Center in London and the International Influenza Center for the Americas in Montgomery, Ala

WHO believes that it is impossible to stop the spread of influenza by quarantine, because such measures are as costly as they are ineffective There should be minimum interference with world traffic, although acute cases should be isolated The epidemic situation changes rapidly The disease has spread to most areas of Japan, Indonesia, the Philippines, Thailand, Laos, India, Pakistan, Iran, and Burma It is abating in Cambodia, Sarawak, Borneo, Formosa, and Viet Nam In the epidemic area, Korea, Dutch New Guinea, Ceylon, and East Pakistan remain untouched by the epidemic

Two new strains of influenza virus, similar to the Asian strain now causing widespread epidemics in the Far East, have been isolated from the crew members of two vessels of the United States Atlantic fleet Neither the two vessels involved nor their crews had had any contact with the Asian epidemic area Other vessels in the Atlantic report outbreaks of respiratory disease, but no virus has yet been isolated In Leyden, Netherlands, a clear case of influenza was contracted as a result of laboratory contamination It occurred in a laboratory worker handling ferrets infected with a virus of the Asian strain This shows how infectious this virus is for human beings This same laboratory reports that antibodies against the new virus are found only in the blood of older people (between 70 and 84 years of age) and hints that this might mean that the current Asian influenza is related to the virus that caused the great pandemic in 1889 Outbreaks of the disease are reported among crews of ships in the ports of London and Bristol Sporadic cases among air passengers arriving in England from Asia have also occurred, but there are no secondary cases and no evidence of local spread In the Netherlands the epidemic is spreading rapidly, and the virus is definitely identified as A/Singapore/1/57 The outbreak started in a girls' school near Amsterdam and spread to Naarden, Utrecht, Rotterdam, Amsterdam, and Egmond There are many cases, particularly in schools, with up to 100% of the children being affected There has been one death from a complicating micrococcic (staphylococcic) pneumonia in a 15-year-old child In Czechoslovakia three strains of the new virus have been isolated and shown to be different from any A strain previously identified there, but direct comparison with the Asian virus has not been completed On its westward course, influenza is now also reported in Teheran, Bahrein, Kuwait, Aden, and Yemen

Poliomyelitis —Cases of acute poliomyelitis increased in most countries of the world during the period 1950-1954, but this increase was uneven and deaths caused by the disease, although more numerous than previously, did not follow the same upward trend, according to a statistical report of the World Health Organization (WHO Epidemiological and Vital Statistics Report, vol 10, no 3, 1957) Nearly everywhere in Europe and America, 1952 was a record year for poliomyelitis, and during the whole five-year period the disease killed relatively more men than women In Europe (excluding the Eastern countries) there were serious outbreaks, and although fewer cases occurred there than in the United States (with only half the population of the 23 European countries concerned), the mortality in the United States was much higher Most severely hit in 1950 were Norway and Sweden (with death rates per 100,000 inhabitants of 303 and 224 respectively), in 1951 Norway again (death rate 628) and Switzerland (death rate 183), in 1952 Denmark (death rate 607), in 1953 again Norway (death rate 324), and in 1954 Switzerland (death rate 227) The lowest death rates in 1950 were recorded in Belgium (28 per 100,000), in 1951 in Denmark (2), in 1952 in Scotland (23), and in 1953 and 1954 in the Netherlands (8 and 3 respectively) Figures for 1955 are incomplete and indicate a decrease in some countries and a slight increase in others In the Americas serious outbreaks also occurred in the period under review, particularly in Canada in 1952 (4,755 cases and 311 deaths) and in 1953, which was a record year for that country (8,888 cases and 481 deaths) In the United States 1952 was the worst year, with 57,879 cases and 3,145 deaths As with other diseases, cases reported to the health authorities usually represent only a fraction of the existing cases Death statistics are more complete and consequently more exactly comparable between countries

Smallpox in Sudan —To combat an outbreak of smallpox in Port Sudan, WHO arranged for an emergency shipment of 125,000 doses of dried smallpox vaccine from Italy A further 125,000 doses was sent later The smallpox outbreak began on June 9 when two suspected cases were reported at Port Sudan on the Red Sea On June 22, 7 cases were reported, on June 29, 32 cases, and on July 6, 10 cases with two deaths Port Sudan is an important transit point for pilgrims on their way to Mecca in Saudi Arabia The information received does not indicate whether the outbreak is connected with the movement of pilgrims, and reports from Saudi Arabia do not mention any smallpox cases having occurred during the first days of this year's pilgrimage The last appearance of smallpox in Port Sudan was in November, 1949, in a pilgrim returning from Jidda

Regional Office for Europe —A new building erected by the Danish government, the WHO Regional Office for Europe, hitherto housed in the Palais des Nations, Geneva, has been opened in Copenhagen It is the directing and coordinating office for the work of WHO in 29 European countries together with Iceland and Morocco Thus the territory covered by this regional office stretches from the Atlantic to the Pacific oceans and is comprised of states which differ widely in their climatic conditions and social structures The new building adjoins the Tuberculosis Research Office of WHO, which has been established in Copenhagen since 1949

LAW DEPARTMENT

MEDICOLEGAL ABSTRACTS

Res Ipsa Loquitur: Sufficiency of Evidence to Overcome Inference of Negligence.—This was an action for damages against three physicians, a hospital, and a surgical nurse for injuries caused by their alleged negligence. The case against two physicians was settled. Motions for nonsuit were granted as to the hospital, the nurse, and the other physician, Eiskamp. The plaintiff then appealed to the Supreme Court of California.

After an operation performed by the defendant physicians, the plaintiff complained of pain. Subsequently, an x-ray examination revealed a Kelly clamp lodged in the upper right quadrant of her abdomen. At the trial the plaintiff called the hospital superintendent and the three physicians to testify under the law permitting a party to call and examine an adverse party. She produced no medical expert of her own, however.

Lacy, the physician in charge of the operation, testified that he scheduled the operation after deciding that an exploratory examination of the upper right quadrant of the plaintiff's abdomen should be made. Lacy and Slegal, who was assisting, made an incision from plaintiff's naval upward, exposing her gallbladder. Lacy called in Eiskamp who, after visual examination, recommended that the gallbladder be removed. After Eiskamp left, Lacy and Slegal discovered a "mass" in the sigmoid colon which appeared to be cancerous. Eiskamp was again called in, he agreed that the mass should be removed and offered to help. They decided not to operate on the gallbladder, and, while Lacy began to close the upper half of the incision, Eiskamp and Slegal removed the mass from the lower left quadrant. Eiskamp performed no work in the upper portion of the abdomen and he left before final closure of the incision. Lacy and Slegal used Kelly clamps in the operation but Eiskamp did not. Lacy testified that he did not request the surgical nurse to make an instrument count. Slegal's testimony substantially confirmed that of Lacy.

Eiskamp testified that he used no Kelly clamps, did not take part in closing the upper part of the incision and left before final closure of the abdomen.

The hospital superintendent testified that surgical instruments are furnished by the hospital and that hospitals in the area "have no established practice of instrument counting either before or after surgery." She said, however, that sponges and needles are usually counted and an instrument count is made if requested by the surgeon.

When a foreign object is left in a patient's abdomen, said the Supreme Court, it is ordinarily the result of the negligence of someone. Such evidence is sufficient, said the court, to raise an inference of negligence under the doctrine of *res ipsa loquitur* and, where a patient receives unusual injuries while unconscious, all persons who had any control over his body or the instrumentalities which might have caused the injuries may properly be called upon to meet the inference of negligence by explaining their conduct.

The plaintiff contended that the inference of *res ipsa loquitur* was not dispelled in this case. She contended that testimony given by defendants as adverse witnesses cannot be used to dispel the inference of *res ipsa loquitur* on which she relied.

Section 2055, said the court, provides in effect that a party to a civil action may be examined as if under cross examination by the adverse party and that the party examining such witness shall not be bound by the witness' testimony and may rebut it by other evidence. Such testimony, however, is evidence in the case and the provision that a party calling an adverse witness shall not be bound by his testimony does not mean that such testimony may not be given its proper weight. The provision merely means that the party calling such witness is not barred from rebutting his testimony or impeaching him. It may therefore be used to dispel an inference on which the plaintiff relies, provided the evidence is clear, positive, uncontradicted, and of such a nature that it cannot rationally be disbelieved. There are situations, continued the court, where the interest of a party in obtaining a judgment favorable to himself will not render all his testimony subject to disbelief. For example, where part of a defendant's testimony is harmful to him but favorable to a co-defendant, that part may be used to rebut an inference unfavorable to the co-defendant provided there is nothing to indicate collusion or any other reason for disbelieving the testimony. The clear and uncontradicted testimony of the three physicians as to Eiskamp's participation in the operation was to the effect that Eiskamp was not responsible for leaving the clamp in the plaintiff's abdomen. The testimony of Lacy and Slegal was disadvantageous to them because the exoneration of one defendant would increase the possibility of liability on the part of the other defendants. There is no rational ground for disbelieving their testimony. The court therefore concluded that the inference against Eiskamp under the doctrine of *res ipsa loquitur* was, therefore dispelled as a matter of law.

The testimony relied on to dispel the inference of negligence as to the hospital and the surgical nurse, however, was that of the hospital superintendent. As an employee of the hospital, she obviously had an interest in the outcome of the case and her testimony could, therefore, be disbelieved by the trier of fact. Even if the trier of fact accepted the testimony as true, it is not of the character required to dispel the inference of negligence raised against the hospital and the nurse. She testified that there was no established practice of counting instruments, other than sponges and needles, before or after surgery. Proof of practice or custom is some evidence of what constitutes due care but it does not conclusively establish the standard of care. It cannot be said as a matter of law that there was no duty on the part of the hospital and the nurse to keep an instrument count. Accordingly, the judgment of the lower court in favor of the defendant physician was affirmed and the judgment in favor of the hospital and the surgical nurse was reversed *Leonard v Watsonville Community Hospital, 305 P (2d) 36 (Calif, 1956)*

Paternity Conclusive Effect of Blood Grouping Tests —The defendant was charged with fornication and bastardy and from a conviction appealed to the superior court of Pennsylvania

A pathologist testified on behalf of the defendant that blood grouping tests which he had made excluded the defendant as the father The defendant contended that, because of this testimony, there should have been a directed verdict of not guilty Section 306 of 28 Pennsylvania Statutes provides In any proceeding to establish paternity, the court, on motion of the defendant, shall order the mother, her child, and the defendant to submit to one or more blood grouping tests by a duly qualified physician to determine whether or not the defendant can be excluded as being the father of the child, and the results of such tests may be received in evidence but only in cases where definite exclusion of the defendant is established ' The court said that this statute does not accord to blood grouping tests the conclusive effect contended for by the defendant It merely provides that such test may be received in evidence It is, therefore, clear that the trial judge's refusal to direct a verdict of not guilty was not erroneous On other grounds, however, the judgment of the lower court was reversed and a new trial ordered *Commonwealth v Hunscik, 128 A (2d) 169 (Pa, 1956)*

Malpractice Action Barred by Release of Joint Tort-feasor —This was an action for damages for injuries allegedly caused by the malpractice of the defendant physicians From the granting of the defendants' motion for judgment on the pleadings, the plaintiff appealed to the court of appeals of Lorain County, Ohio

The malpractice allegedly occurred during the defendants treatment of injuries received while attempting to board a bus operated by the city The defendants pleaded a release given by the plaintiff to the city in settlement of her case against the city for the injuries received as a result of the negligent operation of its bus The release, which by its terms relinquished all right to recover from the original tort-feasor, the city, said the court, operates as a bar to recovery against a physician subsequently retained for negligent treatment of the original injuries The bar which prohibits a second claim predicated on malpractice is based upon the theory that the original tort-feasor is liable for the plaintiff s injuries, including the aggravation thereof at the hands of a physician selected with reasonable care by the injured person Therefore, when settlement is made with the one liable for the total damages, including the aggravation, full compensation has been received for all injuries arising out of the accident The judgment of the lower court in favor of the defendant physicians was accordingly affirmed *Knight v Strong, 140 N E (2d) 9 (Ohio, 1955)*

Malpractice Application of Res Ipsa Loquitur to Gastroscopic Examination —This was an action against the defendant physician for damages alleged to have resulted from the negligent puncturing of the plaintiff's esophagus during a gastroscopic examination for cancer made by the defendant physician From a judgment in favor of the defendant, the plaintiff appealed to the Supreme Court of Pennsylvania

The plaintiff, a woman of 45, entered a hospital, at which the defendant physician was head of the division of gastroenterology, for the purpose of undergoing a gastroscopic examination for the detection of cancer She received medication in the form of Demerol and a hypodermic injection of atropine sulfate, and a gastroscope was inserted into her esophagus No resistance was encountered until the gastroscope reached the cardia, or esophageal orifice, at which place there was an obstruction apparently due to spasm Gentle pressure and insufflation aimed to distend the walls of the stomach so as to clear the passage for the tube were applied but the plaintiff commenced to show signs of distress and an emphysema of the upper abdomen, neck, and cheek occurred The tube was immediately removed and the plaintiff was taken to the surgical ward, where it was discovered that there was a puncture of the esophagus about 1 25 in in size which required a thoracotomy for the removal of a rib and the suturing of the puncture The plaintiff produced no evidence in addition to her own testimony and the cross examination of the defendant, and the trial court therefore entered a nonsuit because of the plaintiff's failure to introduce medical testimony tending to prove that the defendant had acted in any way contrary to the standard medical practice

On appeal, the plaintiff contended that the jury could infer negligence from the mere occurrence of the puncture and from the fact that the gastroscope was under the exclusive control of the defendant In other words, the plaintiff argued that the doctrine of res ipsa loquitur should be applied

The Supreme Court said that no presumption or inference of negligence arises merely because the medical care or surgical operation terminated in an unfortunate result which might have occurred even though proper care and skill had been exercised, and where the common knowledge or experience of laymen is not sufficient to warrant their passing of judgment The only exception to this otherwise invariable rule, said the court, is in cases where the matter under investigation is so simple, and the lack of skill or want of care so obvious, as to be within the range of the ordinary experience and comprehension of even nonprofessional persons Since expert testimony is necessary to establish negligent practice in any profession, the plaintiff's suit must fail in the absence of evidence that the defendant s conduct was not in accord with the ordinary and approved procedure of gastroenterologists engaged in such specialized practice No such evidence was presented

Accordingly the Supreme Court of Pennsylvania affirmed the action of the trial court in favor of the defendant physician *Robinson v Wirts, 127 A 2d 706 (Pennsylvania, 1956)*

Malpractice Release of Joint Tort-feasor as Bar to Action Against Physician —This was an action for damages caused by the alleged negligence of the defendant physician From a summary judgment in favor of the defendant, the plaintiff appealed to the court of civil appeals of Texas

The plaintiff, having been injured in an automobile accident, selected the defendant as his physician. Subsequently, the plaintiff sued the third party tort-feasor for damages caused by the accident and a little later he sued the defendant for damages caused by alleged malpractice in the treatment of the injuries resulting from the accident. While both suits were pending, the plaintiff settled his claim against the tort-feasor, dismissed his suit against him, and executed a common-law release. This release, said the court, operated to fully and finally discharge the tort-feasor. Furthermore, continued the court, it operated to bar any further action by the plaintiff against the defendant physician.

The plaintiff contended that the fact that the tort-feasor had only $5,000 worth of liability insurance, and the fact that his injuries were worth much more than that amount, was ample evidence of his intent not to settle his entire cause of action when he executed the release. The court said that it could not consider the plaintiff's reasons for doing what he did pursuant to the negotiation of the settlement, nor the financial responsibility of the person with whom he settled. This might have been done in connection with litigation between the plaintiff and the tort-feasor, but not in connection with litigation between the plaintiff and the defendant physician. Accordingly, the summary judgment of the lower court in favor of the defendant physician was affirmed. *Sims v. Aurinuger, 301 S.W. (2d) 286 (Texas, 1957).*

MISCELLANY

EDUCATIONAL COUNCIL FOR FOREIGN MEDICAL GRADUATES

J. Murray Kinsman, M.D.

This statement is appearing in the August issue of the Federation Bulletin.—Ed.

The lack of an effective means of evaluating the professional (and other) qualifications of graduates of foreign medical schools has plagued state boards and hospitals for years. Beginning in 1950, the Council on Medical Education and Hospitals in collaboration with the Association of American Medical Colleges began to maintain a listing of some 50 foreign medical schools whose graduates were theoretically to be considered comparable to the graduates of our own schools.

For many reasons this proved to be quite unsatisfactory from the standpoint of determining the qualifications of the individual graduate. To consider the possibility of devising other ways of measuring that factor, in 1954 the Federation [of State Medical Boards of the United States] joined with the American Hospital Association, the American Medical Association, and the Association of American Medical Colleges to form what was called "The Cooperating Committee on Graduates of Foreign Medical Schools." After many months of deliberations, the committee finally evolved a plan which was designed to evaluate the individual foreign graduate rather than his school. The plan was scrutinized carefully and approved by legal counsel before being presented to the parent organizations; in due time each of the four approved it in principle.

The proposed program and background information was published in some detail in the September, 1956, issue of the *[Federation] Bulletin*. As a result of the approval of the committee's recommendations, the Evaluation Service for Foreign Medical Graduates was organized and incorporated under the laws of the state of Illinois on May 14, 1956. The Cooperating Committee had made very careful estimates of the financial probabilities and had estimated that the program should be self-supporting after about two years of operation but that it would need substantial aid until that time. Between them, the four parent organizations pledged grants totaling $25,000, in order to defray expenses in connection with getting the organizational setup under way, but the additional funds needed to maintain operations during this interim period were to be sought from grants. On June 1, 1956, one foundation announced that it would make a grant of $100,000, contingent upon this being matched from some other source.

Other foundations were approached immediately and it was quickly discovered that it was unlikely that the matching grant could be obtained until the organization was declared tax-exempt. Efforts in this direction were begun at once, with the help and advice of legal counsel which the Evaluation Service had employed. It was discovered that, in order to acquire tax-exempt status, two changes would be desirable: (1) to emphasize the educational aspects of the program by changing the name and the statement of purposes of the organization, and (2) to indicate the public service aspects of the program by adding to its Board of Directors at least two members representing governmental or quasi-governmental agencies. Consequently, on Dec. 14, 1956, the name of the organization was changed to the "Educational Council for Foreign Medical Graduates," and the Board was enlarged from the 8 members representing the four parent organizations, to 10, the additional two being trustees-at-large and representing the State Department, and/or the Department of Health, Education, and Welfare, and/or the Department of Defense. As it turned out, the State Department is not legally permitted to participate in this type of organization, so the two trustees-at-large were selected from nominees proposed by the other two.

On Feb. 14, 1957, the Educational Council was given 'tentative' tax-exempt status (unqualified tax-exemption cannot be given until the program has been in actual operation for one year).

On April 4, 1957, financial support for the first two years of operation was assured when a second foundation awarded the grant matching that of the first one, to be effective when a director was employed.

A paid director was then sought. This required a much longer time than had been anticipated. At last he was found in Dr. Dean F. Smiley, now secretary of the Association of American Medical Colleges who, on

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Chairman, Board of Directors, Educational Council for Foreign Medical Graduates.

July 9, 1957, was offered the position and accepted it In order to fulfill his commitments to the Association he went on a part-time basis beginning July 15, 1957, and will become full time on or about Oct 1

The effective date of implementation of the program of the Educational Council for Foreign Medical Graduates is therefore July 15, 1957 Its headquarters will presumably be in Evanston—this has not been definitely decided at the time of this writing Until the staff has been assembled it is not desired that much publicity be given in order to avoid being deluged with inquiries and problems prematurely Once the staff has been assembled it is planned to seek the most widespread publicity, particularly in foreign countries

It should be emphasized that the Educational Council is not concerned with the placement of individual foreign physicians in hospitals nor with assisting individuals to obtain licenses to practice Its function is primarily to evaluate individual foreign graduates and to supply information concerning this evaluation to state boards, hospitals, or other agencies upon legitimate request At the same time, in compliance with its stated purposes, it will have a responsibility to promote the opportunity to further their medical education in this country of those foreign graduates who can benefit the most from it It is not its purpose to "keep the foreign graduate out , on the contrary it hopes that its program will result in a hospital knowing in advance of his coming more about a foreign doctor who applies for an internship or residency, and in providing state boards with more valuable information about those who apply to it for examination for licensure than they can obtain at present

AMERICAN MEDICINE ABROAD—HONG KONG

Lou Hazam

This is the second of a series of on-the-scene reports from the ' March of Medicine" production team, which is traveling around the world to film an hour-long television program on the work of American doctors abroad—the services they perform, the conditions they face, the personal satisfaction they receive in their unofficial roles as America's medical diplomats The author, Mr Lou Hazam, has written all but one of the "March of Medicine" scripts since the series started in 1952 In this article, he tells of the dedicated work of Dr Olaf K Skinsnes in Hong Kong Also, on the "March of Medicine" itinerary are such places as Korea, Sarawak, Burma, Nepal, India, Ethiopia, Lebanon, Turkey, and Guatemala The program, sponsored and produced by Smith, Kline & French Laboratories in cooperation with the American Medical Association, will be seen in color next spring over the NBC television network —Ed

Every Friday morning, in the British Crown Colony of Hong Kong, a former mine layer, the Ling Hong, emerges from amidst the hill city's fantastic floating population—200,000 living on sampans and junks—and heads out into the bay Aboard is a graduate of the University of Chicago Medical School, Dr Olaf K Skinsnes, one of the many American doctors who are serving in a wide variety of capacities overseas In an hour and 10 minutes he will reach his goal It is a leper island known as Hay Ling Chau—the Isle of Happy Healing—the result of a cooperative effort that is testament, in part, to his concern and affection for the Chinese people among whom he lives and works

Dr Skinsnes was born in China, the son of medical missionary parents He grew up and went to school there until the time arrived to go away to college He came to the States and completed his undergraduate work at the University of Minnesota and St Olaf College, Minn After interning at New York Hospital-Cornell Medical Center and being certified a diplomat of the American Board of Pathology, he married and in 1949 left with a family that now includes two small daughters and set out to serve, as his Lutheran father before him, as a medical missionary to China

Dr Skinsnes knew he was taking a calculated chance, what with the political changes then evident there, but he sincerely believed it was a chance worth taking He had but to arrive in Hong Kong to see for himself the great exodus of missionaries from China and to conclude that foreigners would no longer be tolerated in the country he had known as home ever since he was a boy

Invited to join the department of pathology at the University of Hong Kong, Dr Skinsnes settled down with his family in a home on the university grounds high on a hill overlooking what is perhaps one of the world s most beautiful commercial ports He became the only foreign member of an otherwise all Chinese department of this British university, and for some time the only American on its staff It was here that the "March of Medicine' crew found Dr Skinsnes and heard this tale we tell you now

Leprosy is perhaps the Orient's most feared disease Ever since ancient times, surrounded by ignorance and superstition, it has been dreaded—believed by many to be venereal, inheritable, and a punishment for evil sent by the gods One had but to contact it to bring upon himself disgrace, banishment from his neighbors and community, and often a fate that was even worse As for any hope, there is a Chinese saying that goes 'If leprosy can be cured, salted fish can live again!"

All kinds of beliefs took hold One had it that lepers ate the hearts of newborn infants in an attempt to get well Despised, forsaken, some have been known to choose suicide as the only way out Indeed there is one well-authenticated story that is comparatively recent of a community gathering all its lepers into a boat and taking it far out to sea and burning it, taking care to drown those who sought to swim to safety

Dr Skinsnes was interested in leprosy as a research problem, with a view to seeking a better understanding of the disease that might result in more efficient ways of treatment and eradication Inquiry brought out that none believed that there was much of a leprosy problem in Hong Kong It took only a little investigation to reveal that the problem was actually extensive Seeking and securing a grant from the American Leprosy Missions, he made further studies of leprosy incidence and distribution, and began investigations concerning the pathology of the disease and the social reactions to it In time, he joined forces with Dr Neil Fraser of the British Mission to Lepers to bring the matter to the attention of the Hong Kong community Once the community was apprised of the facts, it became truly aroused to do something about it A local organization was formed to combat leprosy, and widespread support was given to its efforts by many leading Chinese and British citizens All of this ultimately resulted in moving a colony of lepers that had been established in matsheds on a stony beachhead not far from the city to the island of Hay Ling Chau

We could see that this island, as we approached it, was flanked by other, smaller islands

'What's that one over there?' we inquired

'Communist,' he replied It seemed too close for comfort "It wouldn't pay to have to put in there'

Hay Ling Chau itself is hilly, covered by evergreen trees and shrubs and rising from the sea to a pointed pinnacle Here, where once there was nothing, are now a hospital, a building for patients with both leprosy and tuberculosis, dormitories for housing the patients, a church, a school, woodworking shops, livestock, and fields of vegetables A permanent staff resides on the island, including Dr Fraser and two medical officers—Dr Douglas Harman and Dr Wong—caring for over 500 patients, who raise their own food supply Complete with laboratory facilities for study, it is in every sense a modern leprosary

The original research project has continued and provided a considerable portion of the information and stimulus needed for the center s development Besides serving as a treatment and research center, it serves also as a teaching center to which final-year students of the University of Hong Kong Medical School come for at least a week of training to further familiarize themselves with the disease In addition, today outpatient clinics in Hong Kong care for about 1,500 outpatients a day in the Hong Kong area itself

Thus, those who had no hope before now take hope and are helped—many of them—to return to a normal useful life in the community

It is for this reason that the Smith, Kline & French medical television unit filmed scenes on the Isle of Happy Healing For it is another splendid and graphic example of the contribution American doctors are making all over the world

MEDICAL FILM REVIEWS

Aneurysms of Abdominal Aorta Surgical Considerations Based upon Analysis of 350 Selected Cases 16 mm, color sound, showing time 25 minutes Prepared by Michael E DeBakey M D Denton A Cooley, M D, and E Stanley Crawford, M D, Houston, Texas Produced in 1957 and procurable on loan from Michael E DeBakey, M D Baylor University, Texas Medical Center, Houston

This film deals largely with the technical aspects of resection of the abdominal aorta for aneurysm and its replacement by various types of grafts At the outset, there is a brief presentation of the physical diagnosis of abdominal aneurysm and the x-ray features of its diagnosis, in particular, the infrequent need for aortography is pointed out The major part of the time is spent in showing the important parts of four abdominal aorta aneurysm resections A different kind of replacement is used in each instance showing a reconstituted homologous aortic bifurcation, a woven crimped nylon bifurcation of the Edwards Tapp variety, a woven nylon bifurcation of the Sanger type, and, finally, a crimped dacron bifurcation developed by DeBakey and his co-workers The material is extremely well presented, both from a technical and photographic standpoint and from the standpoint of the selection of the steps of operation which will be of interest to the observer Quite properly, the author does not offer any final comparison as to the value of the various grafts and prostheses used, because it is too early to have a reliable opinion in this direction In every case, the technical result observed was excellent and every point in technique was clearly made The narration is clear and unhurried This film can be highly recommended for almost every type of medical audience Its interest to students should lie in the points concerning diagnosis and in the frequent mention which is made to the pathology To specialists in general practice, its value should be in pointing out the fact that abdominal aortic aneurysms are dangerous lesions, that their danger is not one over a period of great length but rather over a brief period of months or a few years, and, further, that resection with a very acceptable mortality rate is available for these patients The value to surgeons and particularly to those surgeons interested in cardiovascular work lies in the clear presentation of the technique which has been developed at one of the most active centers in the country

Human Heredity 16 mm color sound showing time 22 minutes Sponsored by the E C Brown Trust, Portland Ore Produced in 1956 by Churchill Wexler Film Productions Los Angeles Procurable on loan (service charge $3) from Motion Picture Library American Medical Association 535 North Dearborn St Chicago 10

This outstanding film presents the facts concerning human heredity, sex roles and determination, and the influence of environment on behavior and attitudes It contributes to the full understanding of important social changes of our times and to the separation of fact from superstition The picture shows how it is possible to handle subjects, once considered delicate and embarrassing, in the most inspiring and delightful manner The discussion of the predetermination of sex is important and well handled, and the influence of environment on appearance and behavior after heredity has made its contribution is well brought out The technical detail is as accurate as it can be in order to be manageable as an elementary introduction to an extremely complicated subject The narration deserves special praise because it is well planned, perfectly intelligible throughout, and delivered slowly enough for everyone to follow The animation is superior and the photography is excellent The film is ideally suited for ninth grade general science and high school biology courses and for physicians who are called to address adult groups such as service clubs and parent teacher associations

An Aid to Therapy (Bacterial Antibiotic Susceptibility Testing) 16 mm, color sound showing time 25 minutes Prepared by Leo L Leveridge M D, and Frederick C Fink, Ph D, Brooklyn, N Y Produced in 1957 by Campus Films, New York, for and procurable on loan from Pfizer Laboratories, Chas Pfizer & Co, Inc, 630 Flushing Ave Brooklyn 6, N Y

The purpose of this film is to acquaint the physician with the advantages and limitations of the commonly available methods of bacterial antibiotic susceptibility testing, so he can better evaluate the reports furnished him by the laboratory It is designed primarily for the physician to whom bacterial antibiotic susceptibility testing is new and is intended to give some familiarity with the common methods, so that the physician can make the optimal use of this aid to therapy with antibiotics For this purpose, the film is highly satisfactory It gives a good general description, in not too technical a fashion, of the commonly accepted techniques It should also be useful for medical students and for students of medical technology The film discusses clearly the nonquantitative interpretation of the disk method and the difficulties of accurate standardization It would have been useful to point out the lamentable lack of uniformity between the different commercially available sensitivity disks The film can be recommended for the audience for which it was intended

Brachial Plexus Block 16 mm, color, sound, showing time 20 minutes Prepared in 1955, by and procurable on loan from Charles C Wycoff, M D, San Francisco Hospital, 22nd and Potrero Sts, San Francisco 10

This film presents the author's technique for brachial plexus block using as landmarks the line of transverse processes, angle of first rib, and scalene cleft and using occlusion of radial pulse by pressure on the subclavian artery at the first rib The area of anesthesia and the signs of anesthesia are also shown This film should be subtitled "Anatomy and Technique of the Brachial Plexus Block" It does not give indications, contraindications, or complications, nor does it go into the anesthetic agents that might be used, rather, with really an inadequate amount of information, it recommends lidocaine (Xylocaine) hydrochloride One would have hoped that the complications could have been listed, and it would have been so easy to have listed them on an anatomic basis that the omission is rather strongly apparent This is a good film from the standpoint of the anatomic rules and is recommended for showing to anesthesiologists

Transvaginal Pelvioscopy "Culdoscopy' 16 mm, color, sound, showing time 25 minutes Prepared by A R Abarbanel M D, Los Angeles Produced in 1956 by Aren-Schon Medical Productions, Los Angeles Procurable on rental ($12 50) or purchase ($225) from A R Abarbanel, M D 6333 Wilshire Blvd, Los Angeles 48

This film demonstrates in detail the author's technique for pelvioscopy which is performed as an office or outpatient procedure Indications, contraindications, and complications are illustrated Various phases of ovarian physiology, including the ovulatory process, the syndrome of ovarian polycystosis, the peritoneal factor in infertility, and findings in secondary amenorrhea are demonstrated by animation and drawings Although this is a simplified procedure in the hands of the author, it is more difficult for the uninitiated, and the accidents which may occur in the cul de sac should be pointed out The photography and technical details of the film are above average It describes, however, a highly technical procedure and is recommended for gynecologists who are interested in this particular field

Vaginal Hysterectomy for Fibroids 16 mm, color, sound, showing time 11 minutes Prepared by Frederick J Hofmeister, M D, Leo R Grinney, M D, Hollis A Paegel, M D, and R C Brown, M D, Milwaukee Produced in 1951 and revised in 1957 Procurable on loan from Ohio Chemical and Surgical Equipment Co, 1400 E Washington Ave, Madison, Wis

The purpose of this film is to demonstrate the Heaney technique of vaginal hysterectomy It shows an operation for uterine fibroids greater in size than a three-month fetus Morcellation technique is shown as well as the technique of removing a tube and ovary vaginally In this case, no repair was necessary The film portrays admirably the operation of vaginal hysterectomy with morcellation of a fibroid nodule The sound is good and the photography is fair The film is recommended to anyone who wishes to observe in some detail the various steps in removing a uterus with myomas

Vaginal Hysterectomy with Repair of Prolapse Demonstrating Heaney Technique with Modification 16 mm, color, sound, showing time 17 minutes Prepared by Frederick J Hofmeister, M D, Leo R Grinney, M D, Hollis A Paegel M D, and R C Brown, M D, Milwaukee Produced in 1951 and revised in 1957 Procurable on loan from Ohio Chemical and Surgical Equipment Company, 1400 E Washington Ave, Madison Wis

In this film, a vaginal hysterectomy demonstrating the Heaney technique is performed on a patient who has a third degree prolapse All the steps used in doing a vaginal hysterectomy are indicated The cystocele and urethrocele are repaired and a posterior colpoperineorrhaphy is performed In general, this is an excellent film, however, there is no mention of the enterocele and there is not enough emphasis on its correction The term "corner sutures' should be more clearly demonstrated This film will be of interest to specialists in training and general practitioners

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Insulin Deficiency and Diabetes F Gerritzen, E L Noach, M van Wijhe and L E M Valk Acta endocrinol 25 91-100 (May) 1957 [Copenhagen]

An intensive search in the literature does not provide convincing experimental or clinical evidence that the late complications of diabetes mellitus are caused by insulin deficiency There remains the question whether the whole clinical picture of diabetes mellitus is accounted for by insulin deficiency only or whether insulin deficiency is only a part of the clinical syndrome of diabetes In an attempt to find out whether it is possible to demonstrate the occurrence of late diabetic complications in the course of experimental insulin deficiency, rats were made deficient in alloxan insulin for 1 year They were injected subcutaneously with a single dose of 75 mg of alloxan (in aqueous solution) per kilogram of body weight All animals showed a glucosuria during the first week after alloxan treatment Of 8 animals which survived the entire experimental period, 5 had a permanent glucosuria (insulin-deficient rats) and 3 never again had a positive glucose reaction in their urine and served as controls It was not possible to observe any changes in the livers, kidneys, eyes, and larger and smaller vessels of these animals comparable to those observed in man with diabetes mellitus This study therefore gives no support to the general and commonly accepted concept, that, at least in the rat, insulin deficiency is responsible for the occurrence of late diabetic complications

Hereditary Pancreatitis Report on Two Additional Families J B Gross and M W Comfort Gastroenterology 32 829-854 (May) 1957 [Baltimore]

The authors cite earlier reports on a familial form of chronic relapsing pancreatitis and present the pedigrees of 2 additional, unrelated families, in which the hereditary form of chronic relapsing pancreatitis and sequelae occurred These additional observations tend to confirm the original impression that in certain families chronic relapsing pancreatitis is transmitted as an autosomal dominant gene The hereditary form of the disease appears to resemble the sporadic form in most respects, except that the hereditary form does appear to begin earlier in life and appears so far to involve females predominantly, whereas males seem more often affected in the usual form of chronic pancreatitis The cause and pathogenesis of the disease are not known Alcohol and hyperlipemia appear to be unimportant factors in the etiology of the hereditary form of the disease, nor have gallstones been associated It is suspected that the inherited defect predisposing to recurring bouts of pancreatitis and sequelae is metabolic in nature It appears quite probable that the hereditary form of chronic relapsing pancreatitis occurs more frequently than has been realized in the past and that increasing awareness of the entity will result in the discovery of many more families so affected

Symptomatology in Ulcer Disease Clinical Evaluation of Symptoms and Examination of Gastric Function in 512 Cases Treated Medically O L Olesen Ugesk læger 119 407-417 (April 4) 1957 (In Danish) [Copenhagen]

The 512 cases studied were predominantly chronic Ordinary clinical methods do not allow certain distinction between different forms of ulcer disease when the usual roentgenologic criteria are applied as the introductory basis Ulcer dyspepsia without roentgenologic changes, gastroduodenitis, and duodenal ulcer show marked points of similarity both in history and clinically and will naturally be interpreted as different phases of the same picture, dyspepsia without roentgenologic changes representing the earliest and mildest stage of the disease, which calls for hospital treatment This group shows a slightly lower average age than the other groups, somewhat shorter average duration, somewhat weaker symptoms, and, like the gastroduodenitis group, slightly lower average acidity than those with duodenal ulcer but the same frequency of hypersecretion The more severe symptoms in persons with verified ulcer are explained by increasing anatomic changes In ulcer of the corpus of the stomach there are marked deviations from the other groups in only a few points but smaller deviations in many points Different relations of heredity, higher average age, tendency of the general condition to be more affected, the disproportionate preponderance of older patients in cases of bleeding ulcer, the 2 deaths in the group, lack of hyperacidity—all these conditions indicate that ulcer of the corpus is subject to different laws than other types of ulcer and develops independently of the hyperacidity that in some way plays a part in the pathogenesis of gastroduodenal and duodenal ulcer The assumption is supported that dyspepsia of so called ulcer type, the roentgenologic-clinical picture of gastroduodenitis, duodenal ulcer with a definite niche, and a duodenal ulcer made probable by roentgenologically demonstrable bulbus

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The place of publication of the periodicals appears in brackets preceding each abstract

Periodicals on file in the Library of the American Medical Association may be borrowed by members of the Association or its student organization and by individuals in continental United States or Canada who subscribe to its scientific periodicals Requests for periodicals should be addressed Library, American Medical Association Periodical files cover 1948 to date only, and no photoduplication services are available No charge is made to members, but the fee for others is 15 cents in stamps for each item Only three periodicals may be borrowed at one time, and they must not be kept longer than five days Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order Reprints as a rule are the property of authors and can be obtained for permanent possession only from them deformity represent different forms of the same basic disease Ulcer of the corpus must be regarded as a disease not connected with gastroduodenitis Until other proof is forthcoming the corpus ulcer must be regarded as a far more serious illness than duodenal ulcer Surgical treatment must be considered as soon as the ulcer is recognized

Treatment of Gangrene of the Feet and Legs by Walking W T Foley Circulation 15 689-700 (May) 1957 [New York]

The success of exercise by using a walking cast in the treatment of fractures suggested that walking might prove helpful in the treatment of gangrene of the feet and legs The first patient in whom exercise was used for gangrene was a young truck driver who had thrombophlebitis obliterans and a gangrenous right first toe After a week s hospital stay he was allowed to walk about on crutches Prompt relief of his intense pain resulted, which was so gratifying that he was then permitted to bear partial weight and walk with a cane Instead of retarding the healing, it took place with unexpected rapidity The feared spread of infection did not occur This favorable experience led to the adoption of walking in 21 other patients At first walking was permitted only in patients with sharply localized gangrene, but as experience increased it was permitted in more recently developed gangrene If the toes are involved, the patient is encouraged to hobble on the heel If that too is involved, the foot is bandaged and weight bearing is distributed over the entire foot

The treatment failed in only 1 of the 22 patients This woman had improved during her hospital stay, but when she returned home her family refused to allow her to walk because of her gangrenous toes Atrophy and spreading infection developed, requiring amputation of the leg Success in the treatment of 21 patients suggests that walking should be added to the medical regimen of oscillating bed, reflex heat, abstinence from tobacco, antimicrobial ointments, bandages, the release of vasospasm, and the treatment of associated conditions, such as diabetes and cardiac decompensation Ambulation results in a decreased need for nursing care Patients are able to walk to the bathroom and attend to their personal needs They are able to leave the hospital sooner While at home they are also less of a burden Many are able to return to work while still under treatment

The Present Status of Philippine Hemorrhagic Fever R M Guerrero Santo Tomas J Med 12 1-7 (Jan-Feb) 1957 [Manila]

There has been much discussion as to whether Philippine hemorrhagic fever is a new disease or an old disease with a new physiognomy The author believes that it is a new disease at least as far as the present generation of physicians is concerned Several types of hemorrhagic fever have been described in the last 20 years in regions of Manchuria and Siberia and also in Bukovina, Crimea, Uzbeskistan, Omsk, and north Scandinavia Lately the Korean or Far Eastern type was described by American authors All of these forms seem to have a nonbacterial etiology, whether viral or rickettsial is not yet definitely known In several forms the disease is transmitted through the bite of an insect and the reservoir of the infection is found in cattle, horses, and ticks The best known type is the Korean type because it was studied by American research workers during the epidemics of 1951-1953, in which several thousand cases were observed It has been suggested that the Philippine type of hemorrhagic fever might be the Korean form brought here by the Filipino troops who fought in Korea

The disease begins abruptly after an unknown incubation period The first or febrile stage lasts 2 to 6 days and is characterized by fever with chills or convulsions, headache, nausea vomiting, flushed face, and injected eyes The second is the hemorrhagic stage, which is usually preceded by abdominal pain and tenderness The hemorrhages take the form of hematemesis, melena, or petechial hemorrhages This stage may begin while the fever is up or after the fever has gone down During this stage there is a tendency to hypotension, which may lead to shock, sometimes irreversible This is the cause of the fatalities This stage lasts 1 or 2 days only and is followed by a prompt recovery The laboratory findings include a positive tourniquet test, normal leukocyte count, a high stab count, monocytosis, and plasmacytosis Blood platelets are often diminished or absent, and the retractility of the clot is diminished The management consists principally in careful nursing, maintenance of nutrition and hydration, and watchfulness with regard to the change in pulse and blood pressure Prompt treatment of the hypotension by means of blood transfusion, polyvynilpyrrholidone, and levophed have given the best results Substances intended to diminish capillary fragility have been used without conclusive results Antibiotics and cortisone have not been shown to be of real value

Wilson's Disease, an Inborn Error of Metabolism with Multiple Manifestations A G Bearn, Am J Med 22 747-757 (May) 1957 [New York]

Classification of Wilson's disease (hepatolenticular degeneration) as an inborn error of metabolism is supported by a large amount of evidence concerning the hereditary and biochemical aspects of the disease in 26 patients studied by the author and in additional patients reported by other workers The clinical manifestations of Wilson's disease usually arise during adolescence, and most of the patients are between the ages of 12 and 20 years They fell into 2 broad and overlapping clinical categories In one, the symptoms were predominantly referable to the nervous system, and in the other, the disease appeared restricted to symptoms and signs of hepatic cirrhosis The neurological form of the disease was most frequently observed, symptoms of tremor, rigidity, dysarthria, and dysphagia stem from disorganization of the lenticular region of the brain

The primary inherited defect appears to involve copper metabolism and is characterized by defective synthesis of serum ceruloplasmin, a low serum copper level, and an increased quantity of albumin-bound (direct-reacting) copper in the serum An increased accumulation of copper in the liver, brain, and other tissues occurs The excretion of copper in the urine is excessive The effect of estrogens on the serum ceruloplasmin concentration was studied in 7 patients who were given ethynil estradiol (Estinyl) and diethylstilbestrol for periods up to 5 weeks In 3 patients, in whom the serum ceruloplasmin level was the least depressed, administration of estrogens resulted in a rise in the ceruloplasmin levels to normal or greater than normal values, in 1 additional patient a slight rise was observed In the remaining 3 patients no significant change in the ceruloplasmin level was demonstrable Accumulation of copper in the kidney in Wilson's disease results in a characteristic renal lesion, similar in many respects to that seen in the Fanconi syndrome Glycosuria, aminoaciduria, phosphaturia, and uricosuria may occur An alteration in renal hemodynamics is usually demonstrable Radiographic examination of the bones and joints was made in 19 patients and revealed abnormalities in 13 Severe osteoarthritis and bone fragmentation were common More rarely, osteomalacia and spontaneous fractures were also seen

The severity of the disease does not appear to be related to the depression of the serum ceruloplasmin level, and restitution of the serum ceruloplasmin level to normal, either by infusion of the purified protein or by the administration of estrogens, has not led to any clinical improvement The improvement which may occasionally follow the use of 2,3-dimercaptopropanol (BAL) and other chelating agents is not well correlated with the magnitude of the increased copper excretion The reason why the lesion is confined to the liver in some patients and to the brain in others cannot be easily explained on the current hypothesis that the primary effect of the abnormal gene, when present in homozygous form, is to diminish the normal synthesis of serum ceruloplasmin and, possibly, other related proteins This difference in the location of the lesion could be due to environmental causes or, more probably, to genetic influences still unassessed

Agammaglobulinemia with Splenomegaly K M Citron Brit M J 1 1148-1151 (May 18) 1957 [London]

The author reports 2 cases of agammaglobulinemia with splenomegaly in a 33-year-old man and in a 17-year-old woman The 2 patients had the features of the acquired idiopathic type of agammaglobulinemia They were in good health before the onset of symptoms of recurrent infection and they did not have any primary disorder to which the development of agammaglobulinemia might have been attributed The normal zinc-flocculation, thymol-turbidity, and total globulin levels, which were determined in the man in the early stages of the disease, provided strong circumstantial evidence that gamma globulin was present in appreciable amounts at the first time these tests were made, so that the agammaglobulinemia must have developed later Gross increase in the size of the spleen was a striking clinical feature in both patients In the woman, the increase in the size of the spleen was present before severe infections had occurred and the spleen was observed to increase in size during the next 3 years until splenectomy was performed In the man, increase in the size of the spleen was noted 8 years after the onset of the disease, with symptoms of infection and enlarged lymph nodes, and the spleen increased in size over the next 6 years The liver was enlarged in both patients Generalized enlargement of lymph nodes occurred in both patients, including the hilar lymph nodes in the man and the intra-abdominal lymph nodes in the woman

Diffuse hyperplasia of the reticuloendothelial elements of the stroma of all lymph nodes studied and also of the spleen was found in the woman Germinal follicles were sparse in the lymph nodes and spleen of the woman in contrast to the man, in whom the numbers of germinal follicles were consistently within normal limits in 3 separate biopsies taken in the course of 6 years The most striking variation from normal, in both the man and the woman, was the presence of mature plasma cells The microscopic appearance of the reticuloendothelial tissue of 6 patients, 3 men and 3 women between the ages of 17 and 53 years, with the acquired idiopathic type of agammaglobulinemia associated with splenomegaly, whose cases were collected from the literature, showed similar features to those observed in the 2 patients Three of the 6 patients had neutropenia and 3 had an acquired hemolytic anemia which was relieved by splenectomy in 2 Abnormally high serum gamma globulin levels were observed in healthy relatives of both of the author's patients and in those of some patients reported by other workers

The Treatment of Snake Bite H L Stahnke, R M Allen, R V Horan and J H Tenery Am J Trop Med 6 323-335 (March) 1957 [Baltimore]

The most commonly recommended treatment for snake bite, i e , the tourniquet, multiple incision, and suction (popularly known as the tourniquet, cut, and suction method) does very little to alleviate the problem of tissue destruction On the basis of 2 illustrative case histories the authors show the superiority of cryotherapy over the tourniquet, cut, and suction method Since snake venoms produce their harmful local effects through the action of enzymes or enzyme-like substances, the use of cryotherapy is definitely indicated Conversely, any technique that permits the venom enzymes to remain concentrated in the body at normal temperatures is providing optimum conditions for tissue destruction Although incision and suction may remove some venom, the most efficient technician can hope to remove only a relatively small part Advantages of cryotherapy are that it prevents rapid absorption of the lethal neurotoxic factor, inhibits bacterial activity, provides ample time for the correct administration of antitoxin, and benefits the emotional condition of the patient by providing a very effective anesthetic action The usual severe pain experienced in pit-viper venenation is absent

Cryotherapy of snake bite requires the following steps 1 A ligature should be placed at once between the site of the bite and the body, but as near the point of entrance of the venom as possible The usual type of tourniquet is not adequate and will permit the spread of the venom A hemostat should be used, especially if the bite is on one of the digits 2 A piece of ice should be placed on the site while a suitable vessel of crushed ice and water is being prepared 3 The member should then be put well above the point of ligation in the iced water Iced water initially is preferred to ice packs, since the thermal conduction in iced water is much greater 4 After the envenomed member has been in the iced water for not less than 5 minutes, the ligature should be removed, but the member should be kept in the iced water for at least 2 hours 5 Then the member is packed in finely crushed ice Since pit-viper venoms may stay in the area of the bite under normal body temperature for 14 hours or more, the cryotherapy will have to continue for a minimum of 24 hours The bite of a snake having a length of 4 ft or more may require 3 or more days of continuous cryotherapy If ice is not immediately available, other methods for reducing the temperature may be employed The most effective mediums are the bottled gases under pressure, such as those in fire extinguishers (carbon techrachloride or carbon dioxide) Frigiderm, ethyl chloride, or freon are especially useful 6 The patient should be kept warm, and after the first 24 hours removal of the enzymes from the site will be hastened if the patient is kept somewhat uncomfortably warm 7 The warm-up after cryotherapy must be gradual It can be accomplished by allowing the water in which the member is immersed to come to room temperature gradually Supplementary therapy is also discussed

SURGERY

Surgical Treatment of Pulmonary Tuberculosis T J Kinsella Dis Chest 31 525-539 (May) 1957 [Chicago]

In commenting on the drastic changes that have taken place in the treatment of tuberculosis during the last decade, the author shows that the older forms of therapy such as pneumothorax, decortication, pneumoperitoneum, phrenic nerve surgery, extrapleural operations, and thoracoplasty were helpful in the control of tuberculosis Thousands of patients who are in good health are living proof of the value of many of these procedures The reason these methods are no longer in extensive use is that the modern methods are better Chemotherapy followed by resection of residual tuberculous disease has largely supplanted prolonged bed rest, collapse therapy, and other treatments The author is concerned chiefly with modern resectional therapy Since this treatment is still in the developmental stage, questions such as how soon and how much are still largely undecided The results also are difficult to assess, although they seem excellent By removal of the tuberculous lesion the period required for treatment is greatly shortened and the future of the patient seems to be safer than with any type of collapse therapy

The time is too short for a fair evaluation of resectional therapy, and the results are as yet clouded by the effects of long-term chemotherapy still being continued The number of patients who underwent resection and had to be readmitted to the sanatorium because of late reactivation of disease has been small, and reactivation has occurred chiefly in those presenting organisms resistant to the drugs, those who early in the program received only short-term therapy, and the deserters who discontinued all treatment soon after surgery As one who for the past 30 years has utilized almost every type of surgical attack on tuberculosis, the author now feels that the present program is the best yet and that, given modern facilities for its use, it is far superior to any other plan of attack now available The risk of death from resectional therapy has been reduced to 0 3% in 311 operations performed on 285 patients in 1954 and 1955 The over-all mortality rate (death within 60 days) in 817 operations carried out in one sanatorium to the end of 1955 was 1 95% The death rate from resectional therapy is also cited for special groups it was zero in children under 14 and 2% in diabetic patients Relapses or recurrences following chemotherapy and resection are closely related to short-term chemotherapy and presence of resistant organisms and to incomplete treatment programs

Intestinal Obstruction Due to Incarcerated External Hernia, with Notes on Non-operative Reduction and Interim Elective Herniorrhaphy W B Gallagher and R H Segnitz Am J Surg 93 771-777 (May) 1957 [New York]

At the Milwaukee County Hospital, 3,676 patients with external abdominal hernia were seen during the decade from 1946 to 1956 This report is concerned with the 245 hernias that were incarcerated and in which intestinal obstruction was proved either at operation or by clinical or x-ray findings Patients with asymptomatic irreducible hernias and those in whom omentum only was caught in the hernial sacs were not included Manual reduction was used in 60 patients, 4 of whom subsequently required emergency operations One of these 4 patients died The procedures used in manual reduction consisted of elevating the foot of the bed and giving a narcotic (morphine or meperidine) An ice bag was frequently applied After the narcotic had allayed the pain, apprehension, and spasm, gentle manipulation with diffuse pressure on the hernial mass was begun The patient himself can be asked to attempt reduction Disappearance of the hernial mass, immediate relief of pain, and subsidence of the symptoms of intestinal obstruction signal a successful reduction Subsequently the surgeon must make frequent checks to make sure that reduction has been accomplished, and elective herniorrhaphy should be performed within a few days Manual reduction was not attempted in exquisitely tender hernias and seldom in those incarcerated more than 24 to 36 hours Narcotics in moderate doses do not mask symptoms and signs of strangulation The authors found that inguinal incarcerations could be safely reduced manually in 30% of the cases, the femoral in 13%, the umbilical in 16%, and incisional defects in 12%

Emergency operations were performed in 181 patients, with 34 deaths (18 7%) Sixty-five of these had simple incarcerations, and 8 of these died The contents of the sac were viable in 82 of those with strangulation, and of these 14 died Of those with strangulated and gangrenous obstructions, 25 were treated by resection and 6 of these died Both patients in whom plication was performed survived, but the 2 in whom exteriorization was performed both died, incision and drainage of abscess was performed in 5, of whom 2 died The 6 whose hernia was inoperable because of complete gangrene all died Two strangulated and gangrenous hernias were found at autopsy The authors conclude that, if manual reduction fails, the simplest, briefest surgical measures to alleviate the obstruction are indicated Gastrointestinal suction decompression, electrolyte balance, fluid and whole blood replacement, and antibiotic "coverage are also indicated If intestine of dubious viability is encountered, resection and anastomosis (by either closed or open method) is the treatment of choice Small patches of gangrene can be inverted by plication sutures With the increasing number of elective herniorrhaphies in infancy, incarceration should become a diminishing problem

Duplication of the Cystic and Common Hepatic Ducts, Lined with Gastric Mucosa A Rare Congenital Anomaly C M Lee Jr New England J Med 256 927-931 (May 16) 1957 [Boston]

The 13-year-old boy whose history is presented began to have recurrent attacks of severe epigastric pain at about 14 months of age The attacks were postprandial and generally subsided in about an hour They became less frequent without specific treatment, and for several years he was nearly free of them, with only occasional episodes at irregular intervals of 3 to 6 months Three years before admission the patient became severely jaundiced, but studies were inconclusive and the jaundice subsided before a diagnosis was made Except for transitory attacks of postprandial pain, he remained well until 2 weeks before admission, when he became slightly jaundiced, with yellow scleras and dark urine, however, his stools remained normal and cutaneous jaundice was not apparent During the week in which examinations and tests were made, he had several attacks of postprandial epigastric pain At operation the gallbladder was removed Frozen sections of the distal portion of the mass showed that it consisted of a double-lumened structure with a common muscularis, lined by biliary epithelium on one side and gastric mucosa on the other The lesion covered the entire common hepatic duct, and resection of it would have necessitated transection of both hepatic ducts proximally and the common duct distally, reconstruction would have required a double choledochoenterostomy, probably involving a Roux-Y anastomosis The alternative was to attempt amputation of the duplication by splitting the common muscular coat, without entering the common hepatic duct The latter course was chosen and was effected by careful scissors dissection, with a T-tube in place as a guide The wall of the common hepatic duct was preserved intact, and no communication between the 2 structures was demonstrated The operation, including appraisal of the frozen sections, consumed nearly 5 hours

The postoperative course was uneventful, and the patient was discharged from the hospital on the 12th day after operation, with the T-tube in place but closed with a rubber band Cholangiograms made through the T-tube at 8 days, 2 months, and 3 months after operation demonstrated gradual recession of the dilatation of the proximal biliary tree The T-tube was removed after 5 months, without untoward reaction The author cites a recent review of the literature on congenital abnormalities of the gallbladder, pointing out that the term double or accessory gallbladder, or vesica fellea duplex applies to 2 more or less complete gallbladders with single or double cystic ducts These are comparable to double kidney, ureter, or uterus in which an extra organ of variable functional capacity is present Approximately 64 cases of such anomalies of the gallbladder in human patients have been reported The term "duplication,' on the other hand although it actually differs little from "double," has by common usage acquired a clear implication of abortive embryonic rests representing incomplete, and usually afunctional, structures attached to an otherwise normal hollow organ The lesion present in the case reported here apparently corresponds to the latter type It is believed to be the first case of congenital duplication of the cystic duct and common hepatic duct, and containing a gastric mucosal lining, ever described

Choice of Therapy for Peripheral Arteriosclerosis E A Edwards New England J Med 256 875-880 (May 9) 1957 [Boston]

As surgical methods become available in the management of peripheral arteriosclerosis, the proper choice of treatment for a particular problem encountered becomes important Major surgery is justified only if life expectancy is adequate How the general expectancy is affected by the presence of peripheral arteriosclerosis is not well documented A study of 100 patients after lumbar sympathectomy offers the encouraging figure of 65% alive at 5 years The author comments on localized versus diffuse arteriosclerosis and emphasizes the importance of evaluating each patient's pathological process to make a proper choice of treatment The localization of arterial obstruction may be judged from the location of claudication pain, palpation, oscillometry of the pulses, and auscultation of the major arteries as well as by arteriography Aortography carries considerable risk and should be avoided if possible Most aneurysms can be delineated through the demonstration of calcification by simple roentgenography Arterial thrombosis and aneurysm are being increasingly emphasized as dangerous complications of arteriosclerosis demanding active treatment Both sympathectomy and arterial reconstruction are useful modes of therapy, but each has its limitations At present, aneurysm stands out as the only certain indication for graft replacement Conservative surgical measures are often successful in the treatment of necrosis

The aims of medical management of the patient with arteriosclerosis are as follows to find and treat concurrent disease, to prevent injury to the ischemic parts, and to treat thrombosis by anticoagulants Medical treatment cannot be expected to change the circulatory status of the limb except in indirect ways, as by allowing one to wait for partial spontaneous improvement after thrombosis, by improving the condition of the heart, or by correction of anemia or polycythemia No vasodilators are effective in arteriosclerosis

Surgical Transplantation of Tumor Cells C T Meadows Am Surgeon 23 247-256 (March) 1957 [Baltimore]

Transplantation of tumor cells in surgical wounds have been reported since 1891 The one fact repeatedly emphasized in the literature is that implantation may occur from practically any type of cancer, located in almost every section of the body Numerous examples were cited in which cancer of the breast, tongue, lip, larynx, rectum, and colon were implanted at operative sites through cancer infection of the wounds by contaminated knives and needles In 1908, Ryall recommended a complete change of gloves, drapes, and instruments and repreparation of the operative site after the biopsy of a malignant tumor is completed and the exploratory incision is closed The perilous effect of tumor cells adherent to the blade of the knife is clearly brought out by several statements which stressed the danger in excising a cancer without the use of cautery and then waiting longer than 2 weeks before the radical operation A case of local recurrence within the abdominal wall 13 years after operation on an ovarian neoplasm was reported between 1930 and 1940 Stimulation of growth and dissemination of tumor cells through the blood and lymph vessels was explained by the dropping of viable tumor cells, which were transferred into the blood vessels by the dissecting knife Many surgeons, in 1936 were discarding the knife after it had been used for the removal of a biopsy specimen of a malignant tumor and continuing the radical operation with another knife or with a second set of instruments This practice, however, was not universal, and the same instruments were still used by some surgeons The present communication reports on the results of examination of material which adhered to the blades of knives used for obtaining biopsies of tumors, particularly breast tumors In some instances the malignant cells were so abundant that their number was comparable to that of erythrocytes on a blood smear of average thickness

Ackerman and Wheat presented in 1955 many new case reports, which aid in making the picture of transplantation more complete Needle biopsy is mentioned as a method of transplantation of tumor cells, as well as skin graft implantations, such as the plasma cell tumor of the chest wall, which was implanted on the donor site of the leg Several subcutaneous implants of tumor cells were reported, such as one following enucleation of a supposed benign thyroid tumor seven years later, implantation of a chondrosarcoma of the femur, and implantation of a carcinoma of the stomach into the abdominal wall scar, this last implantation was removed and the patient was well 5 years after the procedure

A patient with adenocarcinoma of the breast is reported by the author himself Mastectomy was performed elsewhere, and the patient had been followed in the tumor clinic for 2 years One week before death occurred, a nodule was noted in the thigh and was removed It was reported as metastatic adenocarcinoma Postmortem examination a week later revealed extensive pleural metastasis, but no other primary lesion was noted This patient did not have a skin graft The author presents 4 other patients with carcinoma of the stomach, bronchogenic carcinoma, carcinoma of the ascending colon, and carcinoma of the rectum All these cases illustrate transplantation of the tumor cells

Bronchospirometric Investigations Before and After Segmental Resection and Lobectomy for Pulmonary Tuberculosis G Birath, N-P Bergh and E W Swenson Am Rev Tuberc 75 710-723 (May) 1957 [New York]

The unilateral functional loss attending segmental resection and lobectomy was measured with the aid of bronchospirometry in 51 patients with pulmonary tuberculosis for which they had been operated on The relative size of the functional loss caused by the disease itself was also measured in these patients, and that was done with the aid of preoperative bronchospirometry One segment was resected in 18 of the patients and 2 segments in 16, upper lobectomy, frequently combined with the resection of 1 segment and a small thoracoplasty, was performed in 10 patients and lower lobectomy in the remaining 7

The diseased lung had already lost 10% of its normal function before resection in the patients who had undergone resection of 1 segment, for the patients with resection of 2 segments, the functional loss caused by the disease amounted to 20% of the normal value of the involved lung The patients in the upper lobectomy group, although not uniform, had a preoperative unilateral functional loss of about 33%, while the patients in the lower lobectomy group had already lost 50% of the function on the diseased side before the operation Three months after operation these losses were increased in each group, the operated lung having lost about 25% of its normal function after resection of 1 segment, about 33% after resection of 2 segments, 50% to 66% after upper lobectomy-thoracoplasty, and about 66% to 75% after removal of a lower lobe The amount of the functional loss 3 months after the operation was definitely larger than the quantity of resected lung tissue, with the greatest deviations between physiological and anatomic loss being observed in those hemithoraces which had suffered the greatest restriction to ventilatory movements The more extensive resections were followed by larger and more unpredictable functional losses All signs point to the likelihood of functional improvement occurring after the 3 month postoperative period at least up to the end of the first year after the operation Preoperative, intraoperative, and postoperative measures taken in the clinical management of these patients that lead to the best functional results are discussed

Considerations on 162 Patients with Endocranial Metastasis I Pipo and R Tritapepe Minerva chir 12 269-274 (March 31) 1957 (In Italian) [Turin, Italy]

Of 2,531 patients with endocranial neoplasia received in 2 hospitals from 1930 to 1956, 162 had endocranial tumor due to metastasis Metastatic origin of the tumor was ascertained at the operation in 153 patients and at autopsy in 9 The authors studied also an additional group of 66 patients who were not operated on but who had endocranial tumors that almost certainly were metastatic All 66 patients had previously been operated on for malignant tumors or had tumors in some other region mostly the lungs Of the 162 patients 1 was under 20 years of age, 6 were between 20 and 30, 19 between 31 and 40, 78 between 41 and 50, 49 between 51 and 60, and 9 between 61 and 70 The point of origin of the endocranial metastasis could not be ascertained in 68 patients (42 5%) Localization of the primary tumor was unknown in 32% of the patients if the 66 patients who were not operated on are included The lung was the most frequent site of the primary tumor, being involved in 35 8% (42 3% of the men and 17 1% of the women) Carcinoma of the breast was the primary tumor in 28 5% of the women Multiple metastases were more frequent than single metastases (ratio of 3 2) The metastasis was supratentorial in 77% of the patients Twenty-nine of the 125 patients with supratentorial tumors had them in the parieto-occipital region The symptoms appeared less than 3 months before the operation in 73% of the patients Twenty-five patients (16 3%) died within 20 days after the operation Ten of a group of 73 patients survived more than 1 year after the operation One of the patients with carcinoma of the breast survived for 9 months, but the others and those with melanoblastoma survived less than 6 months The authors think that operation is indicated when the patient is in fair general condition and the symptoms of hypertension are the cause of severe suffering Operation is contraindicated when there are multiple endocranial and extracranial metastases and when the subjects are elderly or in poor general condition

Chemical Aspects of Neurinomas of the Stomach H-J Peiper Beitr klin Chir 194 139-157 (No 2) 1957 (In German) [Munich, Germany]

Some reports on neurinomas, although mentioning their localization in the extremities, cranial nerves, and spinal cord, do not mention their occurrence in the stomach, although this localization was described in 1922 The neurinoma-specific rhodiochromic tissue stain introduced by Feyrter in 1950 promoted histological studies on the neurinomas of the gastrointestinal tract The use of this stain disclosed that many neurogenic gastrointestinal tumors had been mistaken for sarcomas, myomas, or fibromas The author believes that in the future reports of neurogenic tumors of the stomach will increase He presents the histories of 2 patients with neurinoma of the stomach, who presented similar clinical pictures On the basis of observations on the first patient the diagnosis of gastric neurinoma was suspected in the second The first patient had had a severe gastric hemorrhage in 1942, the cause of which had not been ascertained In 1956 the patient complained of pains under the left costal arch, he had also noted a hard protrusion in the left side of the upper abdomen, and he had lost a considerable amount of weight Roentgenologic examination of the stomach showed displacement to the right side and downward Laparoscopy revealed a giant tumor with a knobby surface that apparently had no connection with colon or stomach A retroperitoneal sarcoma, a tumor of the spleen or a pancreatic cyst were considered

Laparotomy revealed a neurinoma that originated from the anterior wall of the stomach The tumor, the size of a child's head, was removed, together with the spleen to which it adhered and with the pedicle and the wall of the stomach to which the pedicle was attached The cavity of the tumor was filled with a sanguinous fluid, and its wall was from 0 5 to 1 5 cm in thickness In the second patient the tumor was found to originate from the small curvature of the stomach Because of the wide attachment of the tumor a Billroth 1 gastric resection was performed Histological examination disclosed the neurogenic nature of the tumor During the period from 1945 to 1956, when 412 patients were operated on for carcinoma of the stomach at the surgical clinic of the University of Marburg, 18 patients received surgical treatment for benign tumors of the stomach These 18 included the 2 aforementioned patients with neurinomas, of the remaining 16 patients with benign tumors 11 had polyps, 4 had myomas, and 1 had a lipoma The author recommends early surgical treatment for neurinomas of the stomach, not only because of the threat of fatal hemorrhage but also because of possible malignant degeneration

The Fatal Postoperative Pulmonary Complications in General Surgery W H Becker, K Devens, R Fritz and others Beitr klin Chir 194 203-215 (No 2) 1957 (In German) [Munich, Germany]

During the decade 1945-1954 there were 1,263 deaths among 14,010 patients operated on at the surgical clinic of the University of Giessen Pulmonary complications were responsible for 218 (17 2%) of these postoperative deaths Only 2 other factors caused more postoperative deaths, namely, septic processes and metastases of malignant tumors Fatal postoperative pulmonary complications were nearly twice as frequent (17 2%) as were fatal thromboembolisms (9 7%) Deaths from pulmonary complications were particularly frequent after thoracic operations, that is, they accounted for 83 of 147 (56%) deaths in 1,151 operations on the thorax Of 1,116 deaths that occurred after 12,859 operations (excluding those on thoracic organs) 135, or 12%, were due to pulmonary complications Of these 135 deaths, 97 were caused by bronchopneumonia, 12 by lobar pneumonia, 8 by hypostatic pneumonia, 7 by pleural empyema, 7 by generalized tuberculosis, 2 by extensive atelectasis, and 1 each by pneumothorax and aspiration

The fact that the percentage of fatal postoperative pulmonary complications remained practically unchanged despite the use of chemotherapy and antibiotics is attributed chiefly to the fact that surgical operations are employed more widely While many factors are involved in the development of fatal postoperative pulmonary complications, bronchopneumonia plays a part in about 75% of the deaths, particularly in patients who are in the 7th and 8th decades of life Patients with emphysematous bronchitis seem to be predisposed, since 60% of all those who died of postoperative pulmonary complications showed emphysema on autopsy, compared with only 43% of those who died from other causes Only 1 5% of those who died of pulmonary complications showed atelectasis on autopsy probably because atelectasis is more readily prevented now than was the case formerly by intratracheal suction, respiratory gymnastics, and medical and mechanical circulatory measures These measures together with preoperative examination of the pulmonary function and suitable preparation for the operation are helpful in the prophylaxis of postoperative pulmonary complications

Carotid Artery Surgery in the Treatment of Tumors of the Neck J J Conley A M A Arch Otolaryng 65 437-446 (May) 1957 [Chicago]

The application of the principles of vascular surgery to the carotid arteries has proved helpful in the treatment of tumors in the neck Metastatic cancer invading the carotid arteries, large, enmeshing carotid body tumors, and impending and actual carotid artery hemorrhage present circumstances demanding some type of operation on the carotid artery Intra-arterial pressure readings before and after occlusion are helpful in determining whether an operation on the carotid artery will be lifesaving If the pressure in the distal segment of the internal carotid artery falls by 60 to 70% of its original reading after ligation, a serious complication is likely to develop If the pressure falls by only 20% of its original reading, ligation is likely to prove safe The author reports a series of 31 operations on the carotid and 1 on the vertebral artery The 31 operations on the carotid included 17 free vascular grafts all with autogenous veins, occasionally the saphenous, but chiefly the superficial femoral Ten patients survived the operation Six ipsilateral anastomoses were performed on the internal and external carotid arteries All these patients survived the operation Primary repair of the carotid arteries proved to be a helpful adjunct in carotid artery surgery It was performed 7 times, and 6 patients survived the operation

Bleeding in the carotid arteries is controlled with gentle compression All clamps in use today (Potts, Southwick, and spring types) are traumatizing to the intima of the carotid arteries and should be avoided Gentle compression with fascia lata or tape is preferred Longitudinal wounds resulting from debridement of small perforations, local excisions of cancer in the artery wall, and inadvertent tears are repaired with continuous or individual 00000 nonabsorbable surgical arterial (silk) sutures The stitch penetrates all layers of the vessel wall, but care is taken to prevent inversion of the adventitia In free vessel grafting to a larger defect, two continuous 00000 nonabsorbable surgical arterial sutures are used at each end of the graft The free graft and suture line are bathed in heparine solution during the operation Individual additional sutures may be required to close small leaks A cuff of oxidized cellulose (Oxycel) about the suture line for 5 minutes usually controls all bleeding No heparin is given after the operation

Orthostatic Hypotension in Patients Subjected to Gastrectomy E I Cohen Presse med 65 688-690 (April 13) 1957 (In French) [Paris]

Orthostatic hypotension is characterized by a decline in arterial pressure averaging from 50 to 70 mm Hg accompanied as a rule by an increase in the heart rate—within physiological limits—of 25 pulsations or more Sometimes, however, orthostatic hypotension fails to appear It is well known that orthostatic hypotension can be temporarily relieved by compression of the abdomen and the lower limbs Experimental studies in which these procedures were used separately have shown that, although the characteristic fall in arterial pressure could not be prevented by compression of the abdomen alone, it could be effectually prevented by applying compression to the limbs alone Further studies have also shown that the accumulation of blood responsible for the fall in pressure when the patient assumes an upright position takes place in the venous circulation These findings explain the good results obtained by surgical treatment (saphenectomy) or by ligation of the femoral veins below the inguinal ligament, as advocated by Costantini in patients with orthostatic hypotension The disturbance in the venous circulation in these patients can be attributed to an inadequacy of venoconstriction, which leads to an increase in the vascular bed, a reduction in the flow of blood towards the heart, and a decrease in cardiac output, as in collapse Orthostatic hypotension may therefore be regarded as a special form of collapse which is due to gravity, indeed orthostatic collapse would be a better designation for this condition than orthostatic hypotension

The reduction in cardiac output which explains the clinical picture presented by the patients makes itself felt most in the circulation to the brain, so that the predominant signs are nervous, i e , auditory or visual disturbances, mental disturbances, fainting, and syncope Orthostatic hypotension is thus connected with sympathetic hypotonia and may be encountered in various conditions of which sympathetic hypotonia is a component part, such as Addison's disease or Simmonds disease, after extensive sympathicotomies for the relief of arterial hypertension, and in medullary diseases in which injury to the sympathetic centers is highly probable

The author has recently seen 6 patients with orthostatic hypotension all of whom had undergone gastric resection This procedure, which has not heretofore been mentioned as a cause of orthostatic hypotension, probably acts by injuring the sympathetic system, thus producing a state analogous to that created by sympathectomy in patients with arterial hypertension Syncopal attacks in patients who have undergone gastrectomy are usually attributed to the dumping syndrome, but they may well be due instead to the syndrome of orthostatic collapse Two of the author s patients presented the syndrome in a transient form, the existence of which is not generally referred to in the literature, in fact, the syndrome is usually said to be a chronic condition These transient forms were clinically silent Compression of the lower limbs by appropriate bandaging, taking care not to interfere with the arterial circulation, which proves that the accumulation of the blood takes place in the venous circulation, can also be used as a therapeutic procedure in preventing or relieving orthostatic collapse

Exposed Delayed Primary Skin Grafts A Clinical Investigation J Calnan and F L F Innes Brit J Plast Surg 10 11-24 (April) 1957 [Edinburgh]

Although the application of pressure to grafts is generally regarded as essential to achieving a take neither the amount of pressure required nor how it is to be maintained is stated Their own observations convinced the authors that, whatever pressure might have been applied at the time of bandaging over a graft, this pressure within a matter of hours must approach the vanishing point In addition, they were impressed by the favorable take of patch grafts on granulating surfaces where no pressure and no dressing had been applied For this reason they investigated the necessity for pressure dressings They applied medium-thickness grafts from the thigh to the raw surface on the neck of a woman from whom an area of irradiation dermatitis had been excised No fixation and no dressing was used, but head, neck, and shoulders were immobilized in a prefabricated plaster back shell A stomach tube was used for feeding for the first 3 days to reduce the amount of movement from swallowing By then the grafts were pink and appeared to have taken Fourteen days after grafting the grafts were well healed without loss, the splint was discarded, and the patient was ready for discharge Since these grafts did so well, this method was tried in 25 other patients The results were equally encouraging and show that pressure on grafts is not necessary for their successful take Other disadvantages of pressure dressings include the danger of necrosis if pressure is too great, the frequent failure of well-applied pressure dressings to prevent hematoma formation below a graft, the inability to see collections of blood or serum below a graft, the time needed to apply pressure dressings at operation, the expense of such dressings, and the danger of leaving suture marks where stitches are used to immobilize the graft or dressing

The length of time that skin can survive in the absence of food and oxygen depends on its temperature The higher the temperature, the shorter the time of survival A free skin graft is ischemic until an effective blood supply reaches the underlying dermis, i e , for a length of time that is roughly proportional to its thickness For this reason thin grafts take better than thick ones During the ischemic period the graft must survive by absorption of the serous exudate from its bed—the so called 'plasmatic circulation " Cooling of grafts allows them to survive in vitro for a length of time that is roughly inversely proportional to the temperature The lower the temperature, the longer the time of survival Exposure of skin grafts applied to the body so that they are at room temperature appears to prolong their survival during the time of the plasmatic circulation " The exposure of grafts is practicable and appears to offer certain clinical advantages In some areas, where the application of dressings is difficult or where movement cannot be completely controlled, delayed primary application with exposure of the graft is a satisfactory method for obtaining skin cover It avoids the necessity for bulky dressings and complicated splinting

In 23 of the 25 patients in whom the authors used no pressure, skin grafts were applied 5 to 12 days after the recipient area was prepared The technique followed has been to cut the skin graft, to place it folded on tulle gras in a dry sterile jar, and to store this in a refrigerator at 4 C At the same operation the recipient area created by excision of some offending lesion after careful hemostasis, is covered by a bulky occlusive dressing of dry sterile gauze After five days the occlusive dressing is gently removed and the stored skin applied to the now granulating wound The delay in applying skin grafts does not seem to affect the final results

GYNECOLOGY & OBSTETRICS

Observations on 30 Patients with Eclampsia Treated with Lytic Therapy P Mangione Riv ostet e ginec 12 13-26 (Jan) 1957 (In Italian) [Florence, Italy]

The author reports on 30 patients with severe eclampsia treated with lytic cocktails None of the mothers died Two 5-month old fetuses died, 4 fetuses died of causes not connected with the lytic therapy, and 1 died before the treatment Convulsions disappeared after the administration of the lytic cocktail, the blood pressure values dropped, tachycardia was observed at first but later the rate of the pulse beat dropped, the temperature of the body was reduced An improved blood flow caused the return of the renal function A negative effect of the therapy on the movement of the uterus during delivery was checked with oxytocic drugs The author thinks that the ganglion-blocking therapy prolongs the period of expulsion and that it precludes in part the participation of the patient in the process of expulsion Forceps were used to facilitate delivery in most of the patients The therapy had a beneficial effect on the patients who were subjected to abdominal operation, made possible administration of a low dose of anesthetic, increased the tolerance of the patient to the operation, and had an antishock effect Untoward side-effects in the mothers and in the fetuses were not observed The therapy caused thrombophlebitis in one patient and bronchorrhea in another

Perinatal Mortality in the Unsuspected Diabetic P Pedowitz and E L Shlevin Obst & Gynec 9 524-532 (May) 1957 [New York]

The authors report the cases of 8 of 301 pregnant diabetic women who were delivered of viable infants between January, 1932, and July, 1956 Despite a definite hereditary history in the first 2 patients, it took 3 repeated intrauterine deaths before a study of the carbohydrate metabolism, which revealed unsuspected diabetes, was made A restricted diet, insulin administration, and elective cesarean section resulted in the delivery of normal living infants in successive pregnancies Glucose-tolerance studies are indicated in all unexplained antepartum fetal deaths and should be performed during the first week of the puerperium The cases of 3 pregnant women with preeclampsia showed that in such patients, when the infant is normal or excessive in size for the period of gestation, unrecognized diabetes may be present As shown in 2 of these women, fetal death occurring in utero, with an oversized infant, should not be assumed to be due merely to preeclampsia The recurrence of toxemia in successive pregnancies, as was observed in 1 of the 2 patients, indicates the possibility of some abnormality in carbohydrate metabolism as an underlying causative factor

The 6th patient had a history of 3 early spontaneous abortions and 1 late abortion with fetal malformation A glucose-tolerance test was performed during the 3rd month of her 5th pregnancy This revealed diabetes mellitus The patient was placed on a restricted diet and treated with insulin, and a normal living baby was delivered by cesarean section Although most cases of habitual abortion are not due to diabetes, it may play a role This case also showed that obstetric complications of diabetes may begin many years before clinical recognition The cases of the last 2 patients were illustrative with respect to the size of the infant In the first of these 2 patients, 2 previous pregnancies had terminated in spontaneous deliveries during the 37th week of gestation after the onset of premature labor The living infants weighed 3,760 and 4,086 Gm (8 lb 5 oz and 9 lb) respectively Because of a rising Rh antibody titer, labor was induced during the 36th week of her third pregnancy and a normal living infant weighing 4,120 Gm (9 lb 1 oz) was delivered spontaneously There was no evidence of erythroblastosis and, therefore, a glucose-tolerance test was performed 1 week after delivery This revealed a diabetic curve There is a greater incidence of diabetes in patients delivering oversized infants weighing 4,000 Gm (8 lb 13 oz) or more than in those bearing infants of average weight However, an infant may weigh less than 4,000 Gm and still be excessive in relation to the period of gestation This is generally attributed to miscalculation, but it may be the first manifestation of unrecognized diabetes It took 2 additional pregnancies associated with oversized babies before the diagnosis was made The last patient had been delivered 6 years previously of a living infant weighing 3,370 Gm (7 lb 8 oz) Because of glycosuria and a familial history of diabetes, a glucose-tolerance test was done during the 6th month of her current pregnancy It revealed a frank diabetic curve, and the patient was placed on a restricted diet and treated with insulin A living infant weighing 2,500 Gm (5 lb 8 oz) was delivered spontaneously This case illustrates that, although a large infant is the rule in diabetes, the opposite may occur and that it took more than 6 years for the symptoms of frank diabetes to ensue

Glucose-tolerance studies should be performed on all patients with a poor obstetric history, unexplained intrauterine deaths, repeated episodes of preeclampsia, oversized infants, glycosuria during pregnancy, and in toxemic pregnancies in which the fetus is large for the period of gestation The patient with an abnormal reaction to the glucose-tolerance test during pregnancy has diabetes In patients in whom the hyperglycemia reverts to normal after pregnancy, clinical diabetes can be anticipated in the near or distant future Early recognition and obstetric management of the patient with an abnormal glucose-tolerance curve as a diabetic will result in a marked improvement in fetal salvage

Abdominal Pregnancy A Case Presentation and Discussion W S Yocum J Indiana M A 50 568-570 (May) 1957 [Indianapolis]

True primary abdominal pregnancy is rare, but secondary abdominal pregnancy is not Secondary abdominal pregnancy may to be due to tubal abortion, rupture of the uterus, or mechanisms by which a fertilized ovum or partially developed fetus is extruded into the abdomen It is estimated that there is one abdominal pregnancy in each 2,207 deliveries Many theories have been proposed to explain the development of abdominal pregnancy Probably most such pregnancies result from faulty migration of the fertilized ovum due to some pathological condition in the uterine adnexas The difficulties of the diagnosis and treatment of abdominal pregnancy are explained on the basis of the history of a 33-year-old woman Several internists and gynecologists saw her during her hospital stay, but all agreed to treat her symptomatically and conservatively A diagnosis of abdominal pregnancy in the last trimester is usually easy The patient herself many times will make the diagnosis She will say that the baby is too close to the surface or that a hand or foot is too close, and she can feel it easily Such statements are significant, especially from a multipara

The author lists the following as some of the important points in the diagnosis of abdominal pregnancy persistent abdominal pain, displacement of the cervix, high transverse position of the fetus, signs of fetal death, such as missed abortion or missed labor, existence of an extrauterine mass, the pitocin test of Corwin and McCord, and x-ray findings Once a diagnosis is made, laparotomy is the treatment of choice

It was performed in 90% of the 502 patients reviewed This decision holds regardless of the stage of gestation Most authors believe that the placenta should be left in place in abdomen or pelvis This was done in 80% of the aforementioned 502 patients

Afibrinogenemia in Obstetrics R De Rom Belg tijdschr geneesk 13 575-588 (May 15) 1957 (In Flemish) [Leuven, Belgium]

De Rom presents the histories of 2 women with premature detachment of a normally implanted placenta In the first of these 2 patients excessive bleeding continued even after the uterus had been packed to arrest the hemorrhage It was then found that the blood did not clot The patient was given a transfusion of 1,000 cc of blood, and then hysterectomy was carried out After the operation the clotting of the blood was found to be normal In this patient the diagnosis of hypofibrinogenemia was made in retrospect In the second woman hematemesis and hematuria followed the premature detachment of the placenta, and shock resulted despite the transfusion of 1,000 cc of blood The clotting mechanism of the blood was not normalized until after 500 cc of fresh blood had been administered In this patient the fibrinogen content of the blood was tested repeatedly The author lists the signs and symptoms that characterize the bleeding caused by hypofibrinogenemia or afibrinogenemia and discusses laboratory tests by which the clotting defect can be detected He reviews theories and studies on the pathogenesis of afibrinogenemia in connection with detachment of the placenta If afibrinogenemia is recognized as the cause of defective clotting after delivery, hysterectomy becomes superfluous, but either fibrinogen or fresh blood must be administered In view of the possibility that other factors besides fibrinogen may be involved in the clotting defect, the author prefers the use of fresh blood It is not necessary to use the direct technique of transfusion, since the use of citrate does not interfere with the clotting factors

PEDIATRICS

The Value and Limitations of ACTH in the Treatment of Rheumatic Carditis in Childhood H Wiesener German M Month 2 103-107 (April) 1957 (In English) [Stuttgart, Germany]

The clinical picture of rheumatic fever in childhood is different from that observed in adults While in adults the joint changes are marked, they are only transient in children and may be completely absent at the start of the disease This absence of joint changes causes delay in diagnosis and in treatment The author believes that the term rheumatic fever is to be preferred, because it does not stress arthritic changes and may avoid erroneous diagnosis The author reviews observations on 206 children with rheumatic fever observed during the last 30 years In 147 (71%) the heart was affected There were 22 deaths (11%) Although these children were treated immediately during the first fortnight with high doses of aminopyrine (0 3 Gm 6 to 7 times a day), carditis occurred in 7% In 46 children tonsillectomy was performed without much benefit During the last year the author followed up or examined the case records of 105 children (46 girls and 59 boys) who had suffered from rheumatic carditis during the last 30 years and had been treated with various drugs

Between 1951 and 1955 21 children with rheumatic carditis were treated from the onset of illness with a combination of aminopyrine (0 3 Gm 4 to 6 times daily) and corticotropin Small children received at first 20 mg of corticotropin 4 times daily, while school-age children were given 25 mg 4 times daily, after 10 to 12 days the dose was reduced by 5 mg daily The children were followed up for the next 1 to 2 years The results were compared with those of previous treatment using only aminopyrine or salicylates Combined aminopyrin-corticotropin treatment produced significantly better results pain subsided more quickly, a feeling of well-being returned earlier the clinical signs disappeared more quickly, and recurrences were less frequent However, routine use of corticotropin is not recommended The combined treatment is indicated for acute fulminating pancarditis and in the absence of a response to aminopyrine, but not for recurrences

Present Indications for Exchange Transfusion in the Newborn T Boreau and G David Presse méd 65 715-717 (April 17) 1957 (In French) [Paris]

Exchange transfusions may be indicated in three different groups of newborn infants (1) those with hemolytic disease due to anti-Rh isoimmunization, (2) those with hemolytic disease due to anti-A and anti-B incompatibility, and (3) those born prematurely with severe neonatal jaundice but with no evidence of any blood incompatibility The relationship that exists between the frequency of neurological complications, the intensity of the jaundice, and the high level of bilirubinemia was first noticed in infants with hemolytic disease due to anti-Rh isoimmunization, and the critical level of bilirubinemia has since been shown to be about 18 to 20 mg per 100 cc Experimental studies in which it was demonstrated that the same bilirubin concentration (40 mg per 100 cc) produced in vitro a reduction of 67% in the oxygen consumption of cerebral tissue from the newborn rat but one of only 22% in the adult rat may explain why the lesions of kernicterus are nonspecific and why their topography, though more diffuse, is similar to that of lesions which are purely anoxic These experimental findings may also explain why jaundice in the adult, even when accompanied by high levels of bilirubinemia, is not complicated by neurological lesions comparable to those found in the newborn Finally, they seem to suggest that the same mechanism is responsible for the neurological lesions in severe jaundice resulting from various causes

Exchange transfusion is unquestionably effective in combatting hyperbilirubinemia, but it is not equally indicated in all types of neonatal hemolytic disease The principal indication is found in infants of the first group, for whom exchange transfusion is an emergency measure to be instituted at once if the disease is clinically apparent in the first hours of life Delay or abstention is warranted only in certain benign cases Exchange transfusion is also indicated in infants in whom recognition of the existence of hemolytic disease due to anti-Rh isoimmunization has been delayed Discovery of the disease during the dangerous period of the 3rd or 4th day, when it is in its ascending phase and the signs are progressing, requires immediate exchange transfusion to prevent kernicterus Bilirubin estimates should be made every 12 hours or oftener, and the exchange transfusion should be repeated if the bilirubin level remains above 20 mg per 100 cc Children without signs of kernicterus seen after the 5th day will usually not need exchange transfusion unless the bilirubin level is very high, but when kernicterus is already clinically apparent, exchange transfusion may be tried in the hope of preventing late sequelae, although it does not seem to help the immediate neurological condition

Exchange transfusions should be given to infants in the 2nd group only if they are affected by severe forms of anti-A or anti-B hemolytic disease, as shown by the intensity of the jaundice and a high level of bilirubinemia Exchange transfusions in premature infants weighing less than 1,800 Gm involve certain risks, even when well supported, they may increase preexisting anoxia, so that the benefit to be obtained from the reduction in bilirubinemia is offset by the lack of oxygen They should therefore be given to infants in the 3rd group only if the bilirubin level exceeds 18 mg per 100 cc Bilirubin assays in these infants should be continued for longer periods than in those in the other 2 groups, because the abnormal neurological signs may appear as late as the 7th day

Estimates of the bilirubin level in the blood are subject to wide variations and should therefore be carefully checked for accuracy when used as guides to treatment Full value should also be given to the clinical picture and especially the intensity of the jaundice

Artificial Hibernation in Newborn Infants L de la Villa Rodríguez and A Fuertes Bello Rev clín españ 64 85-97 (Jan 31) 1957 (In Spanish) [Madrid, Spain]

Artificial hibernation with chlorpromazine was induced in 26 newborn infants with shock due to obstetric operations, mainly with forceps Other indications included pneumonia from aspiration of amniotic liquid, acute bacterial or virus infection, and erythroblastosis, as a preliminary to exchange transfusion The drug was given in doses which varied between 1 5 and 1 8 mg per kilogram of body weight The total dose of the drug was dissolved in 2 cc of saline solution and 2 drops of the solution thus prepared was administered to the infants at hourly intervals for a period which varied between 24 and 36 hours The sooner the treatment was started the better were the results Satisfactory symptomatic results were obtained in all cases (100%) Six patients died from causes independent from and beyond control of the treatment

Behaviour Problems in Juvenile Diabetics P Katz Canad M A J 76 738-743 (May 1) 1957 [Toronto]

The author reports on a special group of 26 juvenile patients, 16 male and 10 female, between the ages of 3 and 21 years with diabetic mellitus, who at the onset of their disease were between the ages of 1 and 12 years and who in the course of 6 years were admitted repeatedly to a children's hospital, partly because of infections and partly because of the inability of the parents to control the patients' diabetes Eleven of the 26 patients had behavior problems which were revealed by social histories, psychiatric consultations, and personal inquiries Of the 11, 9 refused to follow their diets Six manipulated their diabetes to achieve their own purposes

The diabetic status of a patient may vary with his emotional state because of alterations by the patient of his therapeutic regimen or because of metabolic reactions to situational life stresses The major etiological factors in the high incidence of behavior problems in juvenile patients with diabetes seem to be (1) an unsatisfactory home situation, made worse by the presence of a diabetic child and (2) the regimentation of the patient's life necessitated by the current therapy of diabetes A physician who assumes the management of a juvenile patient with diabetes must devote time and effort towards establishing a good physician patient relationship Instead of becoming angry and scolding the patient—the usual parental response—for dietary indiscretions or neglecting his insulin injections, patience and understanding are suggested, with a firm "failure to approve' of irrational rebellion The parents and the child should be thoroughly acquainted with the nature and the management of diabetes and its complications While they must be convinced of the seriousness of the disease, they should not be terrorized by it, for overanxiety on the parents' part will increase the tension within the home An attempt should be made to alleviate the sense of guilt that is so prevalent among the parents of diabetic children Outside activities should be encouraged Summer camps for juvenile patients help to ease the feelings of loneliness so often present by giving the child a chance to associate with other diabetic patients of his age Sending the child to summer camps also gives the parents a brief rest from the strain of controlling a diabetic child

Partial Cystic Fibrosis of the Pancreas A Clinical Entity G G Caudill J Iowa M Soc 47 244-248 (May) 1957 [Des Moines]

The author describes 3 cases of cystic fibrosis of the pancreas in a 26-month-old boy, a 5-month-old boy, and a 4-year-old boy The case of the first patient was typical of the disease, with involvement of both the pancreas and the respiratory tract The patient was in good health until a few weeks before his first admission to the hospital with a diagnosis of dehydration and possible whooping cough The attending physician believed that the electrolyte balance was out of proportion to the patient's vomiting and diarrhea, but no explanation was found When the diagnosis of whooping cough could not be confirmed, allergy was suspected as the cause of persistent paroxysmal cough During a later admission, the patient was treated intensively for asthma without clinical response Attention was then directed to the possibility of cystic fibrosis of the pancreas, and the diagnosis was confirmed by the sweat test

The cases of the 2 other patients illustrated the fact that patients with cystic fibrosis of the pancreas need not have involvement of both the pancreas and the respiratory tract and that such involvement may manifest itself independently The 5-month-old baby boy was suspected of having cystic fibrosis of the pancreas because of his poor weight gain (despite a good appetite), repeated respiratory infections, and typical roentgenographic findings (emphysema, atelectasis, and pneumonia), but this diagnosis was dismissed because of normal stools and normal tryptic activity An older brother had a definite history of asthma and consequently an examination for allergy was done Because of the 2+ to 3+ skin reactions, the patient's symptoms, and the positive family history a diagnosis of asthma was made For several years, the patient showed a good clinical response to the antiallergic therapy but then his wheezing became worse and failed to respond to epinephrine or cortisone The results of a sweat test showed abnormally high electrolyte values, and a diagnosis of partial cystic fibrosis of the pancreas was made in the absence of the intestinal component The third patient was admitted to hospital because of abnormal stools noted since birth A diagnosis of cystic fibrosis of the pancreas was not seriously considered at first, for there was no history of an unusual number of respiratory infections, and a roentgenogram of the chest showed no evidence of emphysema and atelectasis The absence of trypsin in the stools and duodenal drainage further confused the issue until it was realized that the respiratory component need not be a part of the disease The diagnosis was confirmed by the detection of an abnormality in sweat electrolytes The presence of clubbing of fingers and toes, in the absence of any detectable pulmonary lesions, was an interesting finding

The sweat test is a simple procedure Sweat electrolyte values in patients with cystic fibrosis were found to vary from 60 to 160 mEq per liter (*J A M A* **160** 846 [March 10] 1956), whereas in controls the range was from 4 to 80 mEq per liter These differences are of definite statistical significance When the sweat electrolyte content of the complete and the 2 types of partial cystic fibrosis of the pancreas are compared, there is no statistical difference

A Survey of Accidental Poisoning Cases in Children M S McIntire and J Buglewicz Nebraska M J **42** 235-242 (May) 1957 [Lincoln]

Of 310 patients with accidental poisoning by inhalation and ingestion who were admitted to hospital in the course of 1 year, 296 were children Poisoning from ingestion had occurred in 292 of the children Medicines found around the home were ingested by 148 (50 7%) of the 292 children and analgesics (mostly aspirin) by 79 (27%) Of the latter, the aspirin was known to be of the baby type in 40 and of the adult type in 6, in 33 the type was unknown Sedatives, laxatives, and antihistamines were other medicines which were ingested Pesticides were responsible for the poisoning in 41 children (14 04%) cleaning, polishing, and sanitizing agents in 40 (13 7%), petroleum distillates in 28 (9 6%) cosmetics in 10 (3 4%), and multiple agents in 6 (2%), the ingested substance was unknown in 7 (2 4%) Miscellaneous items such as toad stools, paints, and cigarettes were responsible for the poisoning in 12 (4 10%), carbon monoxide, illuminating gas, lead, and smoke produced poisoning by inhalation in 4 children

Of the 292 children who ingested poisons, 55 spent a total of 112 days in the hospital Aspirin, pesticides and petroleum distillates accounted for 75 (67%) of the 112 hospital days No conclusion concerning the value of lavage in ingestion of petroleum distillates or of furniture polishes could be drawn because of the small number of such cases There were more cases among boys than girls in all age groups except the 4-to-5-year and 5-to-9 year groups, but the number of patients in these groups was too small to be statistically significant Of the 296 children, 290 (98%) were under 5 years of age No racial difference was noted in the incidence of the type of poisons ingested In more than 50% of the children the ingestion occurred between 8 a m and 5 p m, and about 33% of the cases occurred in the afternoon Of the 14 cases of poisoning in adults, 9 were produced by inhalation and 5 by ingestion There were no deaths among the children One woman died of salicylic acid poisoning

Study of an Epidemic of Infantile Gastroenteritis Due to O111 B4 at the Brussels Center of Puericulture and Pediatrics D Markiewicz Acta pædiat belg **10** 227-242 (No 5 and 6) 1956 (In French) [Brussels]

Study of the stools of some 200 children aged less than 3 years admitted to the Centre de Puericulture et Pediatrie from the beginning of March to the beginning of July, 1956, revealed the presence of the pathogenic strain of Escherichia coli O111 B4 in 22 of the patients Cases of gastroenteritis due to Esch coli are extremely rare in infants fed at the breast or on mother's milk, probably because infants so fed have a higher reserve of sterilizing hydrochloric acid in the stomach and a different intestinal flora The age of weaning is especially critical All the children in this series were being artificially fed

The symptoms caused by the infection are usually nonspecific, ranging from simple diarrhea without impairment of the general condition to those of the most severe form with circulatory collapse and nervous involvement The diarrhea, which is constant, is tenacious and unaffected by diet or antibiotics Vomiting and loss of weight are common The simple dyspeptic form of the disease, with diarrhea, vomiting, and a more or less elevated temperature, but a good general condition, was presented by 9 of the children The diarrhea was of the usual resistant type in all but 3, in whom a normal state was restored within 5 days by dietary measures alone The other 13 children, 8 of whom had been hospitalized for various disorders, had the more severe forms of gastroenteritis with impairment of their general condition Only 4, however, were in a serious state, and all but 1 recovered, so that the mortality rate was fortunately low (5%)

The epidemic character of the disease was obvious in the children in whom it appeared during hospitalization for other reasons These children, with the exception of 2 premature infants, were kept in rooms with from 2 to 4 beds The chronological and topographical spread of the disease was significant, but the problems connected with its origin and the mode of transmission could not be resolved The question of epidemicity did not, of course, arise in connection with the children who were hospitalized because of established gastroenteritis

The value of coprocultures, both as a guide to diagnosis and treatment and as a help in prophylaxis, cannot be overemphasized Examination of the stools should be carried out routinely in infants on admission and also in the adults who are brought in contact with them, especially the nurses and mothers in the maternity departments Children found to be infected should be isolated at once and kept in isolation until their discharge, even though the stool cultures may have become negative Symptomatic treatment, including rehydration in severe cases, is the first requirement The use of antibiotics has significantly reduced the death rate in gastroenteritis due to Esch coli, but a serious problem is being created by the emergence of antibiotic-resistant strains Esch coli of the O111 B4 strain, which was responsible for the disease in these children, has been found resistant to streptomycin (76%), to aureomycin (12%), and to chloromycetin (22%) Attempts are being made to meet the problem of increasing drug resistance by the use of new antibiotics, combined either with one another or with one or more of those already established

DERMATOLOGY

Evolution of Therapeutic Concepts Relating to Acute Eczema P Rimbaud Presse med 65 764-765 (April 24) 1957 (In French) [Paris]

The last 20 years have seen a change in the frequency with which the various clinical types of eczema occur Genuine essential eczema, seen in patients of arthritic stock, intermixed with manifestations of lithiasis or respiratory complications, is becoming rarer, while infectious eczemas, with their secondary manifestations and their tendency toward generalization, and eczema-like dermatites due to accidental, occupational, or drug sensitization are becoming more common The change in therapeutic methods, however, has not corresponded too closely to the clinical changes The methods in use at the beginning of the century were comparatively simple each of the 3 types of clinically recognized eczema—artificial dermatites, eczematization, and eczema as a disease—was met by a special form of treatment which consisted of suppression of the noxious contact for the first, local treatment for the second, and attempts to alter the terrain for the third The new pathogenic concepts arising out of investigations into anaphylaxis, allergy, colloidoclastic shock, and humoral instability, together with the therapeutic procedures they suggested, then began to be hastily applied to the field of dermatologic pathology Most of the methods introduced are still being used indiscriminately by many practitioners in all cases of acute eczema, whatever its cause, usually in association with strict diets and supplementary cholagogues and choleretics Most of the patients hospitalized on the author's service had previously been given treatment of this kind with practically no effect

The types of acute eczema most commonly seen today are those of external origin—accidental, occupational, or medicamentous Eczemas of this kind usually have a protracted course characterized by unexpected and inexplicable relapses Suppression of the allergen is not enough to cure these conditions because the skin, having once had its reactive forces set in motion by a specific allergen, seems to remain under tension and to react anew to agents of all kinds, e g, scratching, light, heat, and emotion Infection, too, must be considered because all forms of externally caused eczema and many of those that are constitutional readily become infected during an acute attack In addition, many are primarily bacterial in origin

Rapid improvement in acute eczema can be secured only by general treatment, because local treatment must necessarily be limited for several weeks to the use of emollient and sedative preparations free from any possible sensitizing agent The sole exception to this rule is hydrocortisone ointment, which can be used in treating limited eczemas The initial treatment of choice, therefore, whatever the cause of the eczema, appears to be a combination of an antibiotic and an anti-inflammatory agent, e g, penicillin or a compound with an oxytetracycline base and cortisone or one of its derivatives Combined therapy of this kind usually produces a rapid improvement in all the clinical signs and also leads to increased tolerance for topical preparations, such as those with a base of ichthyol or tar Prolonged treatment with repeated courses of Δ-1-dehydrocortisone may be needed to consolidate the cure, but they can be given without inconvenience Other measures, such as protection from light or occupational irritants, the use of cholagogues, hormone therapy, and those that are intended to modify the terrain or increase functional activity in essential eczema can be effectively decided on only after the acute attack has been checked Each patient should be separately studied so that he can be given the basic treatment that best meets his needs

OPHTHALMOLOGY

Observations on the Therapeutic Effects of Trypsin Administered Intramuscularly in Ophthalmology A Gennaro and M A Romagnoli Minerva med 48 1519-1521 (April 28) 1957 (In Italian) [Turin, Italy]

Sixty-three patients with various eye diseases characterized by inflammation and edema were given intramuscular injections of 2 5 mg of trypsin in oil suspension every 12 hours for 2 days and once a day thereafter until the edema or the inflammation had disappeared Very good results were obtained in 15 patients with ocular trauma, the edema was totally absorbed after 48 hours of treatment Fair results were obtained in 2 patients with commotio retinae, and poor results were obtained in patients with post-traumatic hypohemia Very good results were obtained in patients with uveitis The hypopyon disappeared after 3 days of treatment in a 70-year-old patient with hypopyon keratitis, and the inflammation of the cornea disappeared after 6 days of treatment Poor results were obtained in patients with epidemic keratoconjunctivitis The authors believe that trypsin can be used instead of cortisone in patients with inflammation of the eye whenever cortisone has no effect or is contraindicated Very good results were obtained in patients with retinal venous thrombosis if they received early treatment Disappearance of the retinal alterations and complete return of the retinal function was obtained after 20 days of treatment in a 45-year old patient with thrombosis of the central vein of the retina The authors think that best results can be obtained in patients with thrombosis if the therapy is applied before occlusion has set in, once the occlusion has set in the therapy has a beneficial effect on the absorption of the edema and of the hemorrhage but has no effect on the pathogenetic mechanism of the occlusion Trypsin therapy has no effect on patients with retinopathies due to diabetes or diseases of the kidney The treatment was not interrupted because of complications due to therapy

THERAPEUTICS

The Significance of Bacterial Resistance to Drugs in Pulmonary Resections for Tuberculosis D V Pecora and D Yegian Am Rev Tuberc 75 781-792 (May) 1957 [New York]

Early tuberculous complications and late results of pulmonary resections were studied in 111 patients operated on whose sputum and/or excised tissue yielded tubercle bacilli by culture One hundred twenty-seven operations performed on these patients over a period of 6 years were available for analysis An attempt was made to correlate the laboratory resistance studies with the early and late clinical results In vitro drug susceptibility tests were performed with streptomycin, aminosalicylic acid, and isoniazid Organisms were considered susceptible to viomycin and pyrazinamide if the host had not received these drugs previously The incidence of early complications did not seem appreciably influenced by the number of effective drugs administered, since the proportion of complications with none, 1 2, 3, or more effective drugs followed no definite pattern The number of drugs to which resistance was demonstrated and the incidence of early complications was a reflection of the extent of disease present at the operation The early results with 1, 2, 3, or more effective drugs were very similar The early results obtained without effective drug coverage were not unfavorable when there was little disease in the surgically treated lung The incidence of unsatisfactory late results increased over the incidence of early complications in those patients in whom 1 effective drug or less was administered, and the incidence of early and late results was about the same in those in whom 2 or more effective drugs were employed With the passage of time the patient who received 2 or more effective drugs tended to do better than one who had received less Both early and late results were related more to the extent of the disease in the surgically treated lung than to any other factor

It seems justifiable to conclude that the mere presence of organisms resistant to drugs is of little importance provided that other effective drugs are available One effective drug seems to provide protection against the occurrence of early postoperative tuberculous complications Two or more drugs seem to provide better protection against late unsatisfactory results than does 1 drug An important factor influencing early and late results is the amount of pulmonary disease present, which probably reflects the number of tubercle bacilli harbored by the host

Indications for Radioiodide Treatment of Thyrotoxicosis A Pihl and L Eldjarn Tidsskr norske lægefor 77 295-298 (April 1) 1957 (In Norwegian) [Oslo]

The use of radioiodide in the treatment of thyrotoxicosis is regarded as the method of choice in selected cases In the Norwegian Radium Hospital radioiodide treatment was applied in 14 selected cases of thyrotoxicosis where surgical or medical treatment had failed or was unsuited, and the favorable results reported from other countries seem to be confirmed The period of observation is too short to allow a definitive evaluation of the results To date no case of cancer of the thyroid attributable to radioiodide treatment has been described, although the treatment has been used in many clinics for over 10 years as a routine method in uncomplicated thyrotoxicosis of adults Since the latent period for possible development of cancer after radioiodide treatment is long, the authors find application of the treatment justifiable in patients aged 50 or over In children and young persons, on the other hand, care must be exercised in the use of radioiodide both for diagnostic and for the therapeutic purposes, as the thyroid gland in the young seems to have greater tendency to develop cancer on radiation influence

Cobalt Therapy as Cause of Euthyroid Goiter H Otto Ztschr ges inn Med 12 428 (May 1) 1957 (In German) [Leipzig, Germany]

The author presents the case of a 16-year-old girl in whom cobalt and iron were used in the treatment of a hypochromic sideropenic anemia There were no signs of goiter before treatment, but when it was terminated a goiter and a somewhat decreased basal metabolic rate were observed The author believes that the goiter was caused by the cobalt therapy, the girl having received a total of 417 mg of metallic cobalt, together with large doses of iron and small doses of vanadium and copper He estimates that the total dose of cobalt given to this girl was more than twice the recommended maximal dose Hyperplasia of the thyroid with hypothyroidism after cobalt therapy has been reported by Blumgart, who noted goiter in 3 of 5 patients after cobalt therapy, myxedema developed in 1 of the 3 patients All the symptoms disappeared after the cobalt therapy was discontinued Blumgart assumed that the hyperplasia of the thyroid was a toxic side-effect of cobalt therapy Although these secondary effects of cobalt therapy are not serious, the author believes that they deserve attention, since cobalt-iron combinations are now widely used in the therapy of secondary anemias

Herpes Zoster Treated with Immune Globulin V J Cirincione J M A Georgia 46 210 (May) 1957 [Atlanta]

The author gave intramuscular injections of immune globulin to 3 patients with herpes zoster Two were men, aged 46 and 47, respectively, who had had symptoms of herpes zoster for about 3 days when the first injection of immune globulin was given In both patients the severe pain ceased after the third injection of immune globulin The third patient was a 57-year-old woman, in whom herpes zoster had existed for 4 weeks when the first injection of immune globulin was given The eruption was subsiding, but severe hyperesthesia involving the right intercostal area and pain had persisted She obtained no relief from 5 injections of 20 cc of immune globulin given daily for 5 days When last heard from, two weeks after cessation of treatment, she needed sedation and was still unable to return to her position as a teacher While no definite conclusions can be drawn from these 3 cases, it appears that immune globulin is superior to the customary treatments for pain and neuralgia of herpes zoster The duration of the disease before treatment with immune globulin, however, may be a factor in the response

Deltacortisone in the Treatment of Ascitic Cirrhoses L de Gennes, B Mathieu de Fossey, L Moreau, H Bricaire, R Tourneur and Janson Presse med 65 709-712 (April 17) 1957 (In French) [Paris]

The effect of deltacortisone in ascitic alcoholic cirrhoses was studied in 32 unselected patients, some of whom were threatened with hepatic coma Seven of the patients had atrophic and 25 had hypertrophic cirrhosis The doses given usually amounted to from 30 to 40 mg a day, and the period of treatment ranged from a minimum of 12 days to a maximum of 10 weeks A suitable average seems to be about 5 weeks, only in certain resistant cases was treatment continued for a longer period The patients were kept on a low-salt diet and were given a B complex vitamin preparation and, in some cases, potassium chloride The usually fatal prognosis of atrophic cirrhosis was not altered by the treatment, and 6 of the 7 patients died By contrast, the excellent results obtained in 16 of the 25 patients with hypertrophic cirrhosis undoubtedly give deltacortisone an important place in the treatment of ascitic cirrhoses Ascites and disturbances of water and salt metabolism are the elements of the cirrhotic syndrome principally benefited by the hormone The best results were of course obtained in patients in whom liver function was not too severely impaired, because no treatment can be expected to compensate for a liver whose functional capacity has been so severely damaged that it is practically nonexistent

The polyuria and natriuria observed in the patients who responded favorably to the treatment seemed to amount to a genuine release inaugurating, if not the cure, at least the stabilization of the disease Thus stabilization has apparently been obtained in 7 of the 16 patients benefited by the treatment as shown by a follow-up of from 3 to 12 months Deltacortisone undoubtedly acts, not by affecting the liver directly, but by improving the patient's general condition The removal of the ascitic barrier, the reduction of fever, and the restoration of appetite, which is especially important in these patients, apparently help them to surmount a crisis in the course of the disease, after which the liver is enabled gradually to recover its functional capacity

Hypothermia Due to Phenylbutazone M Cappio Riforma med 71 390-393 (April 6) 1957 (In Italian) [Naples]

Phenylbutazone had a marked hypothermic effect on 4 patients with typhoid fever, 5 with brucellosis, and 1 with malignant granuloma Nine patients were 13 to 30 years of age and 1 was 62 The body weight of each patient was between 37 and 68 Kg (average 51 7) Each patient was given an intramuscular injection of 0 013 to 0 007 Gm of phenylbutazone per kilogram of body weight One patient suffered a violent psychomotor agitation, multiple hallucinations, and some delirium, these symptoms, which lasted for 1 day, were checked with sedatives and by discontinuing the administration of phenylbutazone Weakness and profuse perspiration at times combined with hypertension and tachycardia were observed in the rest of the patients In 9 patients phenylbutazone was combined with chloramphenicol Chloramphenicol was not believed to be the cause of the hypothermia Phenylbutazone is believed to have a central antithermic effect which affects only altered thermoregulatory centers

Treatment with Oxygen for Disturbances of Peripheral Circulation J Meng and W Rieben Schweiz med Wchnschr 87 525-528 (May 4) 1957 (In German) [Basel, Switzerland]

More than 600 intra-arterial and subcutaneous insufflations of oxygen were given to 37 patients with disturbances of peripheral circulation who were divided in 3 groups according to Fontaine's classification The first group consisted of 9 patients in stage 4 with occlusion of the iliac, popliteal, and femoral arteries Only partial improvement with change from moist to dry gangrene resulted from oxygen insufflation alone, and definitely good results with disappearance of pain and improvement of claudication resulted from combined treatment with sympathectomy and oxygen therapy in 4 patients The second group consisted of 9 patients in stage 3, 7 of whom obtained good results and 2, therapeutic failures Of the remaining 19 patients in stage 2, 3 with occlusion of the iliac artery were therapeutic failures, 1 of these was improved by high lumbar sympathectomy Sixteen patients with localized obliterations obtained more or less good results from oxygen therapy alone

Oxygen therapy may be considered as a valuable addition to the conservative methods of treatment of patients with disturbances of the peripheral circulation, since gratifying improvement was obtained with this therapy in 27 (73%) of the 37 patients The authors, however, caution against the use of the method without any reservations and without appropriate indications Every patient who is suspected to have a disturbance of circulation must be subjected to a thorough angiological study in order to establish the indications for the most suitable therapy, and every patient must receive individual treatment Surgical therapy, including vascular grafts and sympathectomy, takes the first place in patients without contraindications to operation Oxygen therapy is the most successful conservative method in the presence of contraindications to surgical treatment The mechanism of action has not yet been elucidated, but its effect seems to depend on a reactive, prolonged hyperemia with increased blood perfusion in muscles and skin Oxygen insufflation should be given a trial in patients with chronic varicose ulcers Patients with occlusion of the femoral artery may show a better response than patients with occlusion of the popliteal artery and combined occlusion of popliteal and femoral arteries In patients with the distal type of vascular occlusion, combined treatment with oxygen and sympathectomy seems to be the method of choice

Experimental Study of BZ 55 P Gonnard and J Dalion Presse med 65 777-779 (April 24) 1957 (In French) [Paris]

The effect of BZ-55 was studied in animals to determine its toxicity (acute and chronic), its hypoglycemic potency, and the histological changes produced by its administration in various organs, especially the pancreas Rabbits given a dose of 0 70 Gm per kilogram of body weight in a single intravenous injection invariably died within 15 or 20 minutes, those given doses of 0 65 Gm per kilogram of body weight or less invariably survived Administration of the drug in fractionated doses, e g, 3 injections at intervals of 1 hour, was also followed by 100% survival, even when the total dose was much higher than 0 70 Gm per kilogram of body weight, thus several rabbits were given doses ranging from 1 2 to 1 4 Gm per kilogram of body weight, and all survived Moreover, the simultaneous injection of 5 cc of hypertonic glucose solution effectively protected the animals against the harmful action of the drug A rabbit given a single dose of 1 Gm per kilogram of body weight of BZ-55 with glucose suffered no ill effects, although the same dose given the next day without glucose led to its death within a few minutes Glucose also acts as an antidote, preventing death when injected from 5 to 10 minutes after BZ-55, even when the animal is already apparently in a coma Death from BZ-55 therefore seems to be due not to the actual toxicity of the drug but to the hypoglycemia it induces Exact determination of the lethal dose did not appear advisable because it was necessary to use alkaline solutions for intravenous injection and the supplementary factor of toxicity so introduced could not be checked All the findings, however, showed that the lethal doses in animals, whether the drug was given orally, intravenously, or intraperitoneally, were very high in relation to the effective doses, i e, those capable of inducing an appreciable hypoglycemia

BZ-55 has an unquestionably hypoglycemic effect in normal animals and also in those with alloxan-induced diabetes, but the extreme variability with which animals respond to alloxan makes it impossible to define the dosage of the drug or the duration of its action Experiments showing that the hypoglycemia induced by BZ-55 is not modified by the subsequent injection of adrenalin seem to prove that BZ-55 keeps adrenalin from mobilizing the glycogen in the liver

Histological study of the pancreas in guinea pigs, rats, and rabbits given varying doses of BZ-55 showed changes in the A cells, no changes in the B cells, and an increase in the number and size of the islands of Langerhans Attempts to determine the mechanism by which BZ-55 acts produced no clear-cut results, but the indications are that its efficacy is related in some way to the existence of a certain amount of insulin in the pancreas

Pulmonary Eosinophil Syndrome Treated with Prednisone Two Cases E Andersson Ugesk læger 119 462-464 (April 11) 1957 (In Danish) [Copenhagen]

In two cases of pulmonary eosinophil syndrome with prolonged course, both in men aged 20, administration of prednisone after tuberculosis was excluded gave good results The diagnosis is primarily difficult to make, and prednisone treatment can be considered only when tuberculosis has been excluded

PHYSIOLOGY

Influence of Mineral Intake on Bone Density in Humans and in Rats D E Williams, B B McDonald, E Morrell and others J Nutrition 61 489-505 (April) 1957 [Philadelphia]

The purpose of the investigations described was to study the effects on bone density of controlled changes in the mineral content of the diet and to assess the bone index as a measure of calcium status The work in 1948 to 1949 involved measurements of bone density on a group of young adults who reported that their customary diets were low in milk Comparable measurements were made after their usual diets had been supplemented with milk Beginning in 1950, bone density values were obtained for young women serving as subjects for a metabolic experiment in which the diets supplied calcium and phosphorus at low levels during periods of restriction and at or above recommended levels when supplemented with dicalcium phosphate or natural foods. Such a study afforded the opportunity to compare the bone densities of the same subjects on their self-chosen diets and on controlled diets at both restricted and optimal mineral levels. In addition, comparative measurements were made on a series of rats, both young and mature, on diets of markedly different calcium content. In the growing rat bone density measurements from x-ray photographs were adequate to detect the influence of different levels of dietary calcium, in the mature rat and the young human no changes were observed.

The Occurrence of Decompression Sickness Following Denitrogenation at Ground Level and Altitude. J. P. Marbarger, W. Kadetz, D. Variakojis and J. Hansen. J. Aviation Med. 28:127-133 (April) 1957 [St. Paul]

Decompression sickness not unlike that experienced by deep-sea divers during ascent has been reported during simulated flights in low-pressure chambers as well as during flight in nonpressurized aircraft at about 25,000 ft. When flying personnel at ground level prebreathe 100% oxygen for a period of time prior to high-altitude aircraft flight in nonpressurized cabins, the incidence of symptoms of decompression sickness is substantially reduced. The authors investigated the rate and volume of nitrogen eliminated by 33 healthy young men sitting at rest for a 2-hour period, breathing 100% oxygen at ground level and at simulated altitudes. The amount of oxygen inhaled by each subject during the denitrogenation procedure was also estimated. Denitrogenation was accomplished at ground level and at 8,000, 12,000, 18,000, and 22,000 ft. simulated altitude in a low-pressure chamber. The volume of nitrogen, the volume of expired air, and the volume of oxygen inspired were expressed in terms of standard temperature pressure and dry (STPD). These volumes were expressed as a function of time.

The tissue nitrogen elimination in cubic centimeters, STPD, for the average of 33 subjects at the respective altitudes, amounted to 1,051, 816, 751, 679, and 645 cc. The average total oxygen inhaled by 33 subjects in 2 hours, expressed in liters of gas, STPD, amounted to 930, 621, 519, 406, and 268 liters at ground level and 8,000, 12,000, 18,000, and 22,000 ft., respectively. The average total air exhaled during this 2-hour period in liters of gas, STPD, amounted to 876, 595, 483, 371, and 253 liters at the respective altitudes.

These data show that during 2 hours' exposure to 38,000 ft. simulated altitude without benefit of denitrogenation, 16 of the 33 subjects, or 48.5%, suffered from bends before the end of the 2-hour period. After denitrogenation at ground level and then ascent to 38,000 ft. simulated altitude, 2 subjects, or 6.1%, suffered from bends. With denitrogenation at 8,000 ft., 2 subjects, or 6.1%, suffered from bends. With the 2-hour period of denitrogenation at 12,000 ft. followed by 2 hours' exposure to 38,000 ft., 5 subjects, or 15.1%, suffered from bends. Following denitrogenation at 18,000 ft., 3 subjects, or 9.1%, suffered from bends in the subsequent 2-hour stay at 38,000 ft. With denitrogenation for 2 hours at 22,000 ft. simulated altitude, 7 subjects, or 21.2%, suffered from symptoms of decompression sickness with subsequent exposure to 38,000 ft. simulated altitude.

Hemagglutination at Low Temperature: Research on Patients with Hepatic Cirrhosis. G. Silvestri and E. Picchio. Riforma med. 71:228-232 (March 2) 1957 (In Italian) [Naples]

The authors studied the hemagglutination at low temperatures in 18 patients with hepatic cirrhosis ascertained by means of needle biopsy. Marked dysproteinemia, evidenced by marked positive results obtained in tests of serum lability and by an increased sedimentation rate, was present in all patients. These findings showed no relationship to the appearance of hemagglutination at low temperature. Isoagglutination titers were higher than those of autoagglutination. Hemagglutination did not occur in 5 patients, and in another 5 it occurred in very low titers. Increased hemagglutination titers at low temperature (1:1,024) with concomitant increase of the gamma globulin fraction was observed in one patient. The authors point out that increase of the gamma globulin fraction is often present in patients with hepatic cirrhosis and therefore this observation does not prove that hemagglutination at low temperature is a specific biological phenomenon due to an antibody. The authors believe that the presence of hemagglutination is a valuable sign in determining the course of hemolytic anemia caused by cirrhosis of the liver.

PUBLIC HEALTH

Observations on Natural Poliovirus Infections in Immunized Children. H. M. Gelfand, J. P. Fox and D. R. LeBlanc. Am. J. Pub. Health 47:421-431 (April) 1957 [Albany, N. Y.]

Some 300 children who were lacking in immunity to one or more types of poliovirus and who were members of 118 southern Louisiana households which for several years had been under continuous observation in a study of the process of natural immunization, were given a primary course of Salk vaccine with 2 inoculations. The serologic response at 1 month after the second inoculation was determined by measuring the ability of the serums to inhibit the cytopathic effect of polioviruses. On an over-all basis, without reference to previous immunity, the 3 antigenic components of the vaccine were not equally effective, the type 2 component was the most antigenic and the type 3 was the least so. The response occurring *de novo* to a particular type of antigen was enhanced materially by the preexistence of heterotopic antibody.

In the first 7 months following vaccination the child members of the 118 households were closely observed for alimentary infections, and a total of 40 household episodes were detected. These observations, made after the vaccination, on the incidence of household episodes of infection, on the extent of spread of virus within the household, and on the frequency, duration, and amount of excretion of virus in the feces, were compared with similar observations made in the same study group in the period preceding the vaccination This comparison led to the conclusion that 2 doses of Salk vaccine did not materially influence the incidence or duration of alimentary infection or the amount of virus excreted in the feces Polioviruses depend on alimentary infections and not on infections of the central nervous system for their perpetuation in man The 2 essentials are (1) existing sources of infection in the form of intestinally infected persons discharging reasonably abundant virus in their feces, and (2) an adequate number of potential new sources of virus dissemination in the form of persons whose alimentary tracts are still fully susceptible to infection Hence booster inoculation also will fail to influence enteric infection and, as a corollary, extended use of killed virus vaccines will not result in the gradual elimination of polioviruses in the human population of areas in which vaccination is carried out

Problems Associated with Simultaneous Vaccination with BCG and Smallpox Vaccines H Møller Acta tuberc scandinav 33 143 156 (No 1-2) 1957 (In English) [Copenhagen]

In technically underdeveloped countries with shortage of medical personnel and difficulties of communication it is, from the practical point of view, often advantageous to carry out simultaneous or combined vaccinations by means of mobile teams The promoters of the idea of simultaneous and combined vaccinations were workers from Ecuador, Iran, and French overseas territories who have carried out field trials and reported satisfactory response and no complications In densely populated, highly industrialized countries with a comprehensive health service, experts advise against the procedure on theoretical grounds Serious general complications such as generalized vaccinia, postvaccinal encephalitis, and generalized BCG tuberculosis' are so rare that it will be impossible to ascertain any minor increase in their incidence resulting from a change of methods in vaccination Only a very great increase in incidence could be detected by control methods Because of their rarity, these complications are of little practical importance compared with the benefits of smallpox and BCG vaccinations in countries with high death rates from smallpox and primary tuberculosis To evaluate the results of simultaneous vaccination directly in terms of acquired, artificial immunity in a way that would satisfy medical statisticians will hardly be possible in the countries concerned Combined vaccination does not give any major advantage over simultaneous vaccination The main practical point is to be able to give several vaccinations at the same time A suggestion is made for a controled study of allergic reactions and local responses (including local complications) induced by simultaneous as compared with independent BCG and smallpox vaccination

Typhoid and Paratyphoid Carriers and Their Treatment M P Flynn J Irish M A 40 105-113 (April) 1957 [Dublin, Ireland]

The author reports on the use of different methods of treatment in 28 chronic typhoid carriers From 3 to 5% of patients with typhoid and 2% with paratyphoid B became chronic carriers Of the 27 fecal carriers 24 were women, the only urinary carrier was a man Middle-aged and elderly women constituted the majority of carriers Pathological gallbladders were found on x-ray examinations in about 85% of the carriers, and many had manifest symptoms of disease of this organ The gallbladder was the only site of persistence of infection in chronic fecal carriers, the organ acting as a test-tube containing infected bile It is likely that infection may persist in the uper bile passages Renal carriers frequently have an abnormality of the urinary ducts Their treatment is the elimination, usually surgical, of the abnormality

Cholecystography, to ascertain gallbladder function, and additional culture of duodenal contents were carried out Carriers with an apparently normal gallbladder or those in good general health or without evidence of renal or cardiovascular disease were given massive doses of penicillin with probenecid and/or a sulfonamide Cholecystectomy was the most successful method of treatment The feces of 5 of the 6 carriers operated on became negative for pathogens There was one operative death The gallbladder of this patient was almost completely sclerosed To accelerate and eventually to achieve the complete eradication of typhoid and paratyhoid, there should be no hesitation in advising operation for carriers who are average operative risks The dual purpose of the operation is to improve the carrier's own state of health and to safeguard the health of the carrier's relatives and of the population in general

Food Poisoning Due to Nicotinic Acid in Meat Report of an Outbreak E D Lyman, C J Potthoff and H P Jacobi Nebraska M J 42 243-245 (May) 1957 [Lincoln]

The authors describe an outbreak of food poisoning caused by nicotinic acid which was added to ground meat Of 145 persons consuming the meat 88 (60 7%) had typical symptoms of nicotinic acid poisoning such as flushing, especially in the face and neck, with heat and itching, sometimes accompanied by sweating and nausea, abdominal cramps, and acceleration of the pulse No harmful sequelae resulted, but the victims exhibited great anxiety and had a most unpleasant experience Nicotinic acid was added to prevent darkening of meat by inhibiting the conversion of the red myoglobin to the darker metmyoglobin This conversion involves the oxidation of the ferrous iron in the prosthetic group of myoglobin to the ferric state, the oxidation being facilitated by the succinoxidase enzyme system of the meat The practice of adding chemicals and compounds to food should be undertaken only with caution Preservation of perishable foods is best accomplished by cleanliness in processing followed by refrigeration during storage Heat may be used under certain circumstances

BOOK REVIEWS

Clinical Neuro Ophthalmology By Frank B Walsh M D, F R C S, D Sc, Associate Professor of Ophthalmology Johns Hopkins University, Baltimore Second edition Cloth $29 Pp 1294, with 441 illustrations Williams & Wilkins Company, Mount Royal and Guilford Aves Baltimore 2 1957

This new edition, coming 10 years after the first, is the most comprehensive work presently available to English speaking ophthalmologists New case histories have been added and obsolete concepts have been dropped The author makes liberal use of his wide personal experience Because of the decreasing infant mortality, the chapter on abnormalities and diseases of the eye and the central nervous system is of particular importance and warrants careful study On the other hand, because of the increasing life span, the chapter on degenerative, toxic, and metabolic diseases and vascular lesions demands study by the progressive ophthalmologist The chapter on toxic and metabolic diseases contains classical, concrete, and clear descriptions of diseases discussed in very few textbooks Whenever the original article on a particular subject is especially interesting, the author so states and recommends that it be read in its entirety This monumental work should be made available, either in private or public libraries, to the student of neurology and/or ophthalmology, to the instructor or professor of neurology or ophthalmology, and to the practicing ophthalmologist, neurologist, and neurosurgeon There is an index and bibliography

Perinatal Loss in Modern Obstetrics By Robert E L Nesbitt, Jr, M D Professor of Obstetrics and Gynecology, Albany Medical College, Albany, N Y Obstetrics & Gynecology series of monographs Edited by Claude E Heaton M D, Associate Professor of Obstetrics and Gynecology, New York University College of Medicine, New York Cloth $12 50 Pp 432, with 108 illustrations F A Davis Company, 1914-16 Cherry St, Philadelphia 3, 1957

'There is no medical problem today more challenging than this extravagance of nature in her quest for population recruitment Dr Nesbitt accepts this challenge, and his book should go far to combat the peril In discussing placental and uterine physiology, skillful clinical application of the researches of Reynolds, Wislocki, Dempsey, Thoms, and others makes fascinating reading The author, in earlier studies, has contributed much to this field, and no little credit can be ascribed to Dr Eastman for the able guidance given his protégé Anoxia causes more perinatal deaths than any other factor A relatively high incidence of this complication at Johns Hopkins Hospital is attributed by the author to the high proportion of nonwhite patients, who, in turn, help to reduce the incidence of erythroblastosis The various pathological features are well described and beautifully illustrated The nationwide significance of this disorder is indicated by the estimated 336,000 or more present victims of cerebral palsy alone To this stockpile an additional 11,000 are contributed annually, plus many others such as epileptics and mental defectives The author justifiably attributes many of these cases to intrauterine anoxia with resulting brain damage, although modern obstetrics has reduced the number ascribed to the severely traumatic deliveries in Little's original report True, defective embryological development will always characterize many of these, but much can be done by the attendant to reduce this high incidence in our future population Cognizance of the dangers of sedation and anesthesia, of oxytocia in labor, and of the intrinsic hazards of long labors, shock, and postmaturity will improve the score The premature infant, with increased capillary permeability and generally fragile tissues, is especially susceptible to brain damage

Retrolental fibroplasia, described initially by Terry in 1942, and later rightly attributed to overzealous therapy, is skillfully handled Patz's theory that normal retinal vascularization in the fetus depends on low oxygen tension in the choroidal vessels seems well substantiated Pulmonary hyaline-like membranes with resorption atelectasis and other lung lesions are well described and illustrated The many other problems encountered in fetal and neonatal deaths are described in detail, and then, in a masterful manner, the reader is presented with the means of prevention Mere recognition of the pathology would avail nothing In the evolution of the moral of each chapter the author pleads well for the prophylaxis for the future unborn millions Although this is not a book on therapy, the logical treatment and prevention of many of the disorders evolves in a simple and scientific manner This book should be read by everyone doing work in obstetrics—specialist, general practitioner, resident, or intern—and should be freely available in all maternity wards

Change and Dilemma in the Nursing Profession Studies of Nursing Services in a Large General Hospital Edited by Leonard Reissman and John H Rohrer Cloth $6 80 Pp 450, with illustrations G P Putnam's Sons, 210 Madison Ave, New York 16, McAinsh & Company, Ltd, Toronto, Canada, 1957

This report is the result of one of several research projects that have been financed in the past five years by the American Nurses Association It brings together the reports of two consecutive studies at Charity Hospital by the Urban Life Research Institute of Tulane University The first part deals with the four units of the hospital—medical, surgical, personnel infirmary, and central service The second part is devoted to the study of the premature infant center These two reports should be appraised as separate and independent They are not the work of any one person but rather the combined work of representatives of various disciplines Each person, guided by his particular interests and objectives, has studied the complex hos-

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These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated

pital environment, but always the role of the nurse—her functions, her relationship to other personnel and to patients, and her position within the hospital structure—has been the common denominator Most of the material that supports and documents the discussion presented in the body of the book is included in a series of appendixes Full statistical documentation, copies of schedules, questionnaires, and detailed descriptions of projective testing instruments appear in the appendixes

It is noteworthy that the conclusions of the various contributors, each operating within his separate sphere of interest, support and corroborate each other The image of the nurse emerges clearly in all the papers, and the dominant conflict between problems related to bedside care and problems of administration is discussed from every angle Various facets of the problem are described and possible solutions suggested The authors are correct in their suggestion that this volume can be read at several different levels of interest, depending on the orientation of the reader These papers report the findings in four studies on nursing services (their place, function, and personnel) in a large urban general hospital Information is also presented that is of more general interest to those connected with hospitals and the operation of hospitals for there are many instances in which the findings can be generalized to apply to hospitals other than the one studied Administrators, professional and nonprofessional hospital personnel, and even those of the general public who are interested in the subject can find valuable information in these studies A communality threads through each of these studies and documents significant changes in the nursing profession—changes of real import for hospital organization and for the community

The Metabolic Response to Neonatal Surgery By P P Rickham M S F R C S , D C H Consultant Paediatric Surgeon Royal Liverpool Children s Hospital Liverpool, England Cloth $5 Pp 93 with 12 illustrations Published for Commonwealth Fund by Harvard University Press Cambridge 38 Mass , Oxford University Press, Amen House, Warwick Sq , London E C 4, England 1957

This volume presents a detailed biochemical and physiological study of the metabolic changes that occurred in nine patients who were operated on during the neonatal period It summarizes over 3,500 chemical determinations made before and immediately after operation The postoperative period is studied until the patient has achieved some stability Emphasis is on quantitative measurement of the patient s intake (nutrition, fluids, electrolytes, and blood) and output (secretions, urine, stools, and perspiration) In spite of the small number of patients analyzed, the book represents a prodigious amount of work and is an excellent beginning toward providing information concerning metabolic changes associated with neonatal operations It is, in fact, a very good reference book for those interested in the problem An introductory summary of the available data on metabolic changes during operations in adults is provided, and these data are compared with information available about neonatal operative changes The analytical methods used for gathering the material in this book are described, and they are compared and contrasted with methods used for similar studies in adults Microchemical techniques are stressed As indicated by the author the volume has one unfortunate and unavoidable shortcoming Only a small number of cases have been studied Of necessity, therefore, the changes demonstrated can be regarded only as trends not as final observations However, these cases illustrate some of the weaknesses in neonatal physiology that should be considered in the preoperative and postoperative care of the infant They also help formulate a number of principles which the author believes are essential for improving neonatal operative mortality These are described in some detail, emphasis being laid on practical application of these principles in clinical cases

Urologic Injuries in Gynecology Including Vesicovaginal Fistula, Stress Incontinence and Ureteral Injuries By Henry C Falk M D , F A C S Director of Gynecology French Hospital New York Obstetrics & Gynecology series of monographs Edited by Claude E Heaton M D Association Professor of Obstetrics and Gynecology New York University College of Medicine, New York Cloth $7 50 Pp 265 with 97 illustrations F A Davis Company 1914-16 Cherry St Philadelphia 3, 1957

There was a time when childbirth was the principal cause of urinary tract damage with resulting fistulas A clearer understanding of the physiology and pathology of labor has served to provide more intelligent management of the parturient woman and a marked lessening of the injuries to the urogenital tract The small residue of injuries now remaining in this category are the product of poorly managed or badly neglected cases Progress in gynecologic surgery, however, has exacted its price in an increase in injuries to the urinary tract This book does not deal with urinary tract injuries associated with the radical and supraradical surgical treatment of pelvic malignancy It presents an excellent, practical, and detailed discussion of the principles and surgical management of urinary tract injuries associated with obstetric damage and the surgery of benign pelvic lesions Each condition is thoroughly analyzed as to cause and principles to be observed Excellent advice as to prevention is a valuable feature of the work Well-chosen illustrations show each successive step in the operations There is no skipping of intermediate steps, nothing is left to the imagination This valuable book belongs in the reference library of every gynecologist and urologist It will be consulted often and with profit in the management of these challenging cases which, fortunately, occur infrequently in an average practice

Industrial Toxicology By Lawrence T Fairhall Second edition Cloth $10 Pp 376 Williams & Wilkins Company, Mount Royal and Guilford Aves , Baltimore 2, 1957

In this new edition, published eight years after the first, Dr Fairhall maintains the format of the original edition and separates the subject matter into two main alphabetized groups inorganic substances and carbon compounds New additions to the first group include chlorine dioxide, decaborane, hydrazine, kaolin, ocher, and lithium The second group has been expanded to cover 46 additional compounds such as acetophenone, amyl acetate, butylamine, chlordane, malathion, methoxychlor, and parathion A brief digest of characteristics, industrial uses, toxicity, and methods of detection for each compound is presented A short list of pertinent references accompany each digest An added feature of the revised edition is an appendix that includes conversion tables for gases, end products of detoxification for 73 compounds, a table of the 1956 threshold limits adopted by the American Conference of Governmental Industrial Hygienists, and the comparative toxicities for 104 industrial and agricultural chemicals The great advances in chemical technology and the increasing accumulation of toxicological data on industrial chemicals are reflected in the revised edition As a reference book, it provides a quick digest of information on industrial poisons Because its orientation and emphasis is primarily directed to industrial hygienists, it may have only limited appeal to physicians outside of occupational medicine It is a welcome addition to the growing literature on industrial poisons

Signs and Symptoms Applied Pathologic Physiology and Clinical Interpretation Edited by Cyril Mitchell MacBryde A B, M D F A C P Associate Professor of Clinical Medicine Washington University School of Medicine St Louis Contributors Benjamin Alexander M D and others Third edition Cloth $12 Pp 973 with 197 illustrations J B Lippincott Company 227-231 S Sixth St, Philadelphia 5 2083 Guy St Montreal Canada, 1957

Although this book represents the combined efforts of 28 contributors, skillful editing has produced a smoothness and unity that is rare in medical books of this type The purpose of the book is to orient the student and physician as to the proper approach to diagnosis The book quite naturally begins with a chapter on history taking and is followed by several chapters on analysis of such symptoms as pain, headache, cough, dyspnea, cyanosis, and jaundice Three chapters not included in previous editions deal with growth and sex development, generalized vasospasm and arterial hypertension and lymphadenopathy and disorders of the lymphatic system At the end of each chapter a few well-selected references are listed Many tables and illustrations supplement the well-written text The index is complete The teaching experiences of the contributors and the editor are crystallized in this book so that it should be valuable to the medical student as well as to the practicing physician for ready reference

J A M A Clinical Abstract of Diagnosis and Treatment Published with approval of Board of Trustees American Medical Association Cloth $5 50 Pp 564 Intercontinental Medical Book Corporation, with Grune & Stratton, Inc, 381 Fourth Ave, New York 16, 1957

For the physician who finds it difficult to keep abreast of clinical medical developments, there must be a source of medical literature condensations that will allow him to learn of those articles he should read in full Such a source is found in the Medical Literature Abstracts section of THE JOURNAL of the American Medical Association The present compilation contains selected abstracts from THE JOURNAL that pertain most directly to diagnosis and treatment, arranged as they refer to a certain organ or disease This format integrates all contributions toward the patient and his illness rather than limiting new medical material to a specific specialty The digestive system, cardiovascular system, and reproductive system are representative chapter topics Other sections include poisonings and infections, and there are pertinent references to radiation, including isotopes, hazards, and protection The subject of drugs and drug reactions should be of interest to all practitioners There is an unusually comprehensive index Such a volume as this should be welcomed by every physician regardless of his specialty

Illustrated Medical and Health Encyclopedia Volumes 1-8 Edited by Morris Fishbein M D With collaboration of leading specialists in medicine and surgery Contains new entries and illustrations plus material from The Modern Home Medical Advisor and The Popular Medical Encyclopedia Cloth $19 50 Pp 1-269 277-541, 549-813, 821-1085 1093-1357, 1365-1629 1637-1901, 1909 2166 H S Stuttman Company, 404 Fourth Ave, New York 16, Copyright by Doubleday & Company, 575 Madison Ave, New York 22, 1957

This eight volume series on "medical information for the public' is an interesting, informative, and yet concise presentation of current knowledge on various medical topics It is not intended to advise people how to treat themselves but rather to supply basic information on health problems and the ways in which the medical profession can be helpful To supplement the presentation, there is a large number of illustrations which in themselves convey a wealth of helpful data The editor is known for his interest in medical writing, but he has called on the advice of experts to assist him in the compilation of these volumes Thus, about 30 men of medicine have pooled their information The topics are arranged in alphabetical order so that one may pass from a definition of the abdomen and information on abdominal pain to brief presentations on yaws, yellow fever, zinc, zygoma, and even zyme

A Text-Book of Surgical Pathology By Charles F W Illingworth C B E M D, Ch M Regius Professor of Surgery, University of Glasgow, Glasgow, and Bruce M Dick, M B, F R C S, Regional Consultant in Thoracic Surgery, Western Region, Busby, Scotland Seventh edition Cloth $14 Pp 730, with 322 illustrations Little, Brown & Company, 34 Beacon St Boston 6, J & A Churchill Ltd, 104 Gloucester Pl, Portman Sq, *London*, W 1, *England*, 1956

This new edition is excellent and up to date As stated in the preface, sections discussing some conditions, particularly those that have been controlled largely by antibiotics and no longer present a problem, have been abridged Sections discussing conditions such as water and electrolyte imbalance, hypothermia, metabolic disorders due to trauma, endocrine dysfunction, cancer, and portal hypertension, and the use of radioisotopes have been added or elaborated on The style is concise and excellent for students, interns, and residents The many illustrations are well done The only defect is that the bibliography is limited almost entirely to British sources The book would be a valuable addition to any surgeon's library

Whitla's Dictionary of Medical Treatment By R S Allison V R D, M D, F R C P, Lecturer in Neurology, Queens University, Belfast, T H Crozier, M D, B Sc, F R C P, and 26 contributors Ninth edition Cloth $10 50 Pp 854, with illustrations Williams & Wilkins Company, Mount Royal and Guilford Aves, Baltimore 2, Bailliere, Tindall & Cox, 7-8 Henrietta St, Covent Garden, London W C 2, England, 1957

Therapeutics, although universal in scope, is nevertheless influenced greatly by the country in which it is practiced This compendium of numerous therapeutic procedures, contributed by 28 authorities, presents primarily the British viewpoint Although up-to-date and of great value for the British general practitioner, it has limited usefulness for the physicians of other countries except for comparative reference purposes The book is self-indexing in that each subject is presented alphabetically A comprehensive cross index is also included The text is clear The subjects are treated concisely with sufficient information for initiating interest but not enough detail for complete coverage

Clinical Use of Radioisotopes A Manual of Technique Edited by Theodore Fields M S, F A C R, Assistant Director Radioisotopes Service, Veterans Administration Hospital Hines Ill, and Lindon Seed M D, Clinical Associate Professor of Surgery, University of Illinois College of Medicine Chicago Cloth $9 50 Pp 455 with 71 illustrations Year Book Publishers, Inc, 200 E Illinois St, Chicago 11, 1957

Only those procedures that the editors considered to be currently accepted and most representative of the various clinical procedures used are described and discussed in this manual Individual chapters were contributed by well-qualified experts The manual is divided into sections dealing with routine clinical diagnostic tests, routine clinical therapeutic techniques, planning and operating the radioisotope laboratory, and radiation safety It is well written lucidly presented, and should be especially useful to those who have had some experience with radioisotopes

The Family Book of Child Care By Niles Newton Ph D Assistant Professor of Psychiatry, School of Medicine, University of Mississippi, Jackson With editorial collaboration of Paul Gyorgy M D Professor of Pediatrics School of Medicine University of Pennsylvania Philadelphia Irwin M Marcus M D Clinical Associate Professor of Psychiatry and Director of Family Study Unit School of Medicine Tulane University New Orleans and Thaddeus L Montgomery, M D Professor of Obstetrics and Gynecology Jefferson Medical College Philadelphia Cloth $4 95 Pp 477 with illustrations by Ora H Harris Harper & Brothers, 49 E 33rd St, New York 16 1957

This book contains a vast amount of useful information for mothers, fathers, social workers, nurses, and others directly concerned with infant and child care The book is well written and stresses the psychological aspects but does not neglect the medical side of child rearing The importance attached to breast feeding is evidenced by the 24 pages covering this as against five pages devoted to bottle feeding Demand feeding is stressed The authors recommend early introduction of cup feedings Much space is devoted to child and family relationship The appendix contains a list of organizations helpful to parents who want specialized information and an excellent selective book list for further reading Parents, prospective parents, pediatricians, and others intimately concerned with child care should find this book of much value

Hemorrhagic Diseases By Armand J Quick Ph D M D Professor of Biochemistry, Marquette University School of Medicine Milwaukee [Second edition] Cloth $9 50 Pp 451 with 37 illustrations Lea & Febiger, 600 S Washington Sq Philadelphia 6, 1957

This monograph is intended to replace an earlier edition that had become so out-of-date that essentially a new book had to be written For those especially interested in the field of coagulation this is a valuable treatise It discusses the developments in this field in the course of the last 20 or more years as seen by a man who became interested in the field at the beginning of the modern era and has contributed greatly to our present knowledge of coagulation and hemorrhagic diseases Against the background of the history of this subject, the developments in the last several decades are outlined and interpreted The book should also prove useful to nonspecialists, since it affords an up-to date account of the various diseases one encounters and discusses their differentiation and management in a concise and clear manner In addition, almost 100 pages are devoted to laboratory methods that the author has found helpful As with most books, it is possible to find matters for minor criticism Thus, for example, the problem of terminology which has so plagued the field of coagulation is handled chiefly by ignoring it One can find such terms as accelerator globulin, 'proconvertin, and parahemophilia' in the index, but they are ignored in the text It would be useful if the reader were given the terms used by others Again, Dr Quick uses the terms pseudohemophilia A and pseudohemophilia B apparently without concern for the fact that they are not descriptive and are even misleading, according to the definitions given, the disorders to which they refer in no way resemble hemophilia In matters of technique, one is surprised to see that a spring lancet is recommended for use in the measurement of bleeding time, ignoring the possibility of transmitting infectious hepatitis by the use of the same instrument in patient after patient Despite these minor faults the book is well written, the style is clear, and the treatise is well worth having

Jordan's Tropical Hygiene and Sanitation By W Wilkie, Instructor in Hygiene School of Hygiene, Uganda Bailliere's Elementary Tropical Handbook Third edition Cloth $5 Pp 408 with 122 illustrations Bailliere Tindall & Cox 7-8 Henrietta St Covent Garden London, W C 2 England [Williams & Wilkins Company Mount Royal and Guilford Aves Baltimore 2] 1956

This handy book should be of special interest to those who are concerned with hygiene and sanitation in tropical areas However, much of the information can be used in more temperate regions, and for this reason the volume should be useful as a quick reference source It is not as complete as some of the larger textbooks, but then, presumably, it is not intended to be

QUERIES AND MINOR NOTES

TREATMENT OF ASIATIC INFLUENZA

To the Editor —*What is the best possible treatment of Asiatic influenza, at least in the initial stage? Inasmuch as no vaccine is available here, what could be done to control symptoms?*

Karl Pollak, M D , Addis Ababa, Ethiopia

Answer —There is no specific therapy for any type of influenza Treatment is therefore directed toward control of symptoms Sneezing, coughing, coryza, muscular aches and pains, chills, headache, sore throat, prostration and convalescent debility are the general presenting problems Depending on the predominant symptoms, some relief, transient though it might be, may be offered to the patient Analgesics, antipyretics, antitussives, antihistamines, antibiotics, and expectorants constitute the armamentarium Supportive measures consist of bed rest, light diet, and fluids as needed

Chemotherapy or treatment with antibiotics should not be used in the absence of establishing or developing bacterial complications Older patients and those with disabling systemic disease may require prophylactic use of chemotherapy or antibiotics Active immunization with currently available vaccines achieves a substantial reduction in the incidence of influenza, provided that the prevailing strain of virus matches closely the antigenic components of the vaccine used and the vaccine is given early enough to be effective

PAIN AT NIGHT IN KNEE

To the Editor —*A 60-year-old man has been troubled with pain on the medial aspect of both knees for the past two years The pain has come on only when in bed but has been severe enough to awaken him nearly every night There have been no muscle cramps Physical examination reveals adequate circulation and no abnormal neurological signs Several x-ray studies have shown nothing abnormal except a loose body posteriorly in the joint space of the left knee Is there a possible explanation, and what additional studies should be done?*

James P Baker, M D ,
White Sulphur Springs, W Va

This inquiry has been referred to two consultants, whose respective replies follow —Ed

Answer —This inquiry does not contain sufficient information to offer more than an outline as to what further should be done It is obvious that posture and sleep are directly related to the experience, if these are the facts The first step would be to determine whether there is any local factor responsible for the severe pain at night, that is, in view of the fact that the x-ray studies have shown no abnormality, whether the patient s sleeping posture would, if on the side, cause compression of the knees together in the event that he did not have sufficient fatty tissue to prevent direct pressure during a period of relaxation

Pain in this area may be referred due to pathology in the hip joints, and this area should be studied The Patrick sign would be important to elicit, and should this prove to be absent, then the lumbar spine might be considered as a possibility for this bilateral pain The pain and the incidence of bilaterality do not indicate to this consultant disk involvement but may, in periods of relaxation, involve some of the roots of exit, and, if the area is correctly localized, one would suspect the fourth lumbar root Root pain usually has a burning quality, and this is not stated in the inquiry

The following test might prove to be of some benefit or at least suggest the possible diagnosis if the condition is in the lumbar spine The patient stands with feet together and knees locked back in a straight upright position He is then requested to bend forward If the pain is produced by bending forward at approximately a 30-to-45 degree angle with the knees straight or by stretching a sciatic nerve, a disk or root involvement can be suspected If, however, when the patient flexes the knees in a semisquatting position and bends forward, should he be able to bend farther than was the case in the first instance, the sciatic and nerve distribution might be thus detected If, when the patient squats, the bending forward is arrested at the same point because of the onset of pain, a vertebral or structural spinal involvement can be suspected

In either event, stereoscopic x-rays of the lumbar area, centering the film around the fourth lumbar vertebra and its roots of exit, taking both lateral and anterior-posterior stereoscopic exposures, may disclose lipping of the vertebral edges or some distinct and localizing factor which might become operative during the relaxed period of posture in sleep

Answer —There is insufficient information about this patient other than his age and the complaint of pain on the medial aspect of both knees Since local examination and roentgen studies have revealed no pathology in the areas of pain, one might consider studying the spinal cord and cauda equina X-rays of the thoracic and lumbar spine seem indicated Further information may be gained from the performance of a lumbar puncture To make this study complete, the puncture would best be done at a low interspace, and a Queckenstedt test should be performed Analysis of the cerebrospinal fluid should certainly include a total protein determination Further information would be derived from performing a myelogram at the same time At this point, no explanation for the patient's complaint is apparent

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The answers here published have been prepared by competent authorities They do not, however represent the opinions of any medical or other organization unless specifically so stated in the reply Anonymous communications and queries on postal cards cannot be answered Every letter must contain the writer s name and address but these will be omitted on request

MICROMETHOD DETERMINATION OF BILIRUBIN IN ERYTHROBLASTOSIS

To the Editor —*In the proper care of an infant with erythroblastosis fetalis, careful attention should be paid to the bilirubin level of the blood At the present time, most determinations of this level require a vein puncture and the removal of 5 to 10 cc of blood from the infant This is especially true in the smaller local hospitals in which the more inexpensive photometers are used Not only does the vein puncture require considerable effort and time, with considerable blood being drawn, but it can be rather traumatic to the infant Is there any accepted micromethod of bilirubin determination which can be used in the smaller hospitals and which can deal with a small enough quantity of blood so as to require only a heel prick or other puncture? The method could have a margin of error of ± 2 mg per 100 cc and still be of great use in the screening of these infants Please supply information as to the exact type of equipment needed*

Graham A Barden Jr, M D, New Bern, N C

Answer —Determination of bilirubin in serum (micromethod) is based on the principle of the quantitative Van den Bergh test by means of electrophotometry In carrying out the procedure, the steps are as follows 1 In a test tube place 0 5 ml of serum diluted with 9 5 ml of distilled water (if blood is drawn from the umbilical cord, it should be centrifuged and 0 5 ml of serum removed) 2 Into a colorimeter tube add 6 ml of methyl alcohol, 1 ml of freshly prepared diazo reagent, and 5 ml of diluted serum Hemolysis should be avoided, if possible 3 Into a colorimeter tube labeled blank' transfer 6 ml of methyl alcohol, 1 ml of diazo blank, and 5 ml of diluted serum 4 Invert the tube several times, keep it at room temperature for 30 minutes, and read it in the colorimeter If bubbles form, dislodge them by tapping the tube gently on a table 5 If an Evelyn colorimeter is used, filter no 540 should be used If a Coleman spectrophotometer is used, filter no 550 should be used Place the blank in the instrument and set the galvanometer to read 100 Insert the sample tube and record the galvanometer reading If the reading is below 10, add 12 ml of 50% methyl alcohol to each tube and repeat the readings, results obtained are multiplied by 2

A calibration can be made, and the concentration of serum bilirubin is expressed in milligrams per 100 ml The calibration curve can be prepared by placing 1 2, 4, 6, and 8 ml of standard bilirubin solution in a series of tubes, each containing 1 ml of diazo reagent, and adding ethyl alcohol to each tube to make a final volume of 10 ml A blank tube is prepared by diluting 1 ml of diazo blank with 9 ml of ethyl alcohol The bilirubin concentrations in these standards equal 2, 5, 10, 15, and 20 mg of bilirubin per 100 ml of serum

So far as interpretations are concerned, the average normal level of bilirubin in serum in children and in adults is between 0 25 and 0 75 mg (average, 0 5 mg per 100 ml) Between the upper limit of normal and 2 mg per 100 ml is the zone of latent jaundice, above 2 mg is the zone associated with clinical jaundice According to Dr H J Behrendt (Diagnostic Tests for Infants and Children, New York, Interscience Publishers, Inc, 1949), abnormally high bilirubin levels cannot be applied to newborn infants The majority develop physiological hyperbilirubinemia with and without concomitant jaundice Hyperbilirubinemia attains its highest degree between the second and fifth days of life Davidson, Merritt, and Weech (*Am J Dis Child* 61 958-980 [May] 1941) have demonstrated that in young infants there is no critical serum bilirubin level as regards visible jaundice Infants do not develop clinical jaundice during the neonatal period, the majority showing no icterus until serum bilirubin is approximately 4-5 mg per 100 ml There is no consistent correlation between the appearance and degree of jaundice and the intensity of hyperbilirubinemia

TONSILLECTOMY IN PRESENCE OF HEMOPHILIA

To the Editor —*A 12-year-old boy with hemophilia has recurrent tonsillitis and is in need of a tonsillectomy Is there any type of therapy which would enable this patient to withstand this procedure successfully?*

Donald I Purcell, M D, Paragould, Ark

Answer —Surgery in cases of hemophilia is always hazardous, and, therefore, one hesitates to recommend an elective operation In an emergency, 500 ml of fresh or fresh-frozen plasma should be given immediately before the operation and another 250 ml several hours later The need of further transfusions is best determined by the clinical course The effect of the transfusion should be determined by the prothrombin consumption time Whole blood generally should not be given unless the hemoglobin level drops below 8 Gm per 100 ml of blood

TONSILLECTOMY IN PATIENTS WITH CONGENITAL CORTICAL HYPEROSTOSIS

To the Editor —*Please advise as to doing a tonsillectomy on a small boy with congenital cortical hyperostosis (Caffeys syndrome)*

Ralph A Lundeberg, M D Griffith, Ind

This inquiry has been referred to two consultants, whose respective replies follow —Ed

Answer —Congenital cortical hyperostosis is a disorder affecting the skeleton and some of its adjacent fascias and muscles The cause is unknown and the pathogenesis obscure Many patients have severe and protracted fever, and in most the erythrocyte sedimentation rate is increased there is also increased phosphatase activity of the blood serum during the active phases of the swelling and fever The average age of onset is 9 weeks The bone marrow is characteristically fibrotic without abnormal cells Neither bacteria nor viruses have been cultured from the affected tissues, nor have serologic tests disclosed reactions to infections Intimal proliferation in the small arteries has been reported in the region of the bone and fascial lesions The uneven, protracted clinical course of the disease, with unpredictable remissions and relapses, is one of the most characteristic features and one which makes evaluation of therapeutic agents uncertain

If tonsillectomy is definitely indicated, the usual precautions should be taken preoperatively, such as a chest x-ray and physical examination to exclude possible pleural effusion, in addition, consideration should be given to the presence of thrombocytopenia because of the fibrinous replacement of bone marrow Hemorrhagic studies should include platelet count, tourniquet test, and determinations of bleeding, coagulation, and prothrombin times

Answer —Unless the *indication for tonsillectomy is* extremely urgent, it would be unwise to carry out the procedure while the patient has congenital cortical hyperostosis, for during the acute phase of the disorder he may show such signs of illness as malaise, fever, anorexia, and leukocytosis Once the acute phase has passed, and during the period in which the osseous and periosteal lesions are subsiding, or after they have disappeared, tonsillectomy should offer little more risk than in the case of any young patient It is probable that few, if any, tonsillectomies have been performed on babies during the acute phase of the disease, and consequently there would be little, if any, information regarding complications that might follow such a procedure

HYPERBILIRUBINEMIA

To the Editor —*A 42-year-old man in good health gave blood as a volunteer donor, and the serum was observed to be tinged For that reason a bilirubin test was done and revealed 0 2 mg per 100 cc direct and 2 mg total A cephalin flocculation test was then done and revealed 1+ after 24 hours and 2+ after 48 hours Physical examination was essentially negative, and the hemoglobin level was found to be 16 Gm per 100 cc This man is a roofer He has very rarely handled tar but almost daily uses hydrochloric acid Is it possible that the hydrochloric acid is responsible? What further diagnostic tests should be performed?*

Ellis M Markell, M D , Harrison, N Y

Answer —Hydrochloric acid is neither a hepatotoxic nor an hemolytic agent and, therefore, could not be held responsible for this individual's hyperbilirubinemia Since the possibility of viral hepatitis exists, such individuals should not be used as blood donors A thymol turbidity and flocculation test may be positive in spite of a nearly negative cephalin flocculation test Therefore, these tests should also be done A sulfobromophtalein test would, likewise, help to determine whether there is parenchymatous liver disease

Because of the low (0 2 mg per 100 cc) one-minute or direct-reacting bilirubin value, it is unlikely that the hyperbilirubinemia is due to extrahepatic biliary obstruction or infiltrative lesions of the liver The urine should be tested for bilirubin and urobilinogen The presence of urobilinogen may indicate either parenchymatous liver disease or hemolysis In spite of the high hemoglobin level a compensated hemolytic process may exist The absence of reticulocytosis would rule it out If all these tests are negative and a mild hyperbilirubinemia persists, the patient may belong to the group with congenital or familial nonhemolytic jaundice or idiopathic hepatic dysfunction

HEART MASSAGE IN A NEWBORN INFANT

To the Editor —*Because of uterine inertia, a cesarean section with the aid of spinal anesthesia was performed on a 36-year-old woman The infant, weighing about 11 5 lb (5,216 Gm), made no effort to breathe on delivery, despite the usual resuscitative efforts, i e , suction of the nasopharynx, aspiration of the stomach, external stimulation, and administration of oxygen through the Kreiselman resuscitator Heart beat, which seemed feeble on delivery, was no longer palpable or audible Intracardiac therapy with epinephrine was employed, and oxygen was administered with an endotracheal tube, inserted under direct vision under positive pressure Because no heart beat could be obtained, the left side of the chest was opened There was no bleeding, and the heart was at a standstill After three or four massaging efforts, the heart was felt to beat vigorously Respiratory efforts started after five minutes of administration of oxygen intermittently under positive pressure The chest was closed with an underwater seal, and the baby left the operating room in good condition Please supply information as to whether the above is a standard procedure in circumstances such as described Have there been many such incidents reported?*

M Halperin, M D , East Stroudsburg, Pa

Answer —As far as is known, the operation described in the query is the first one reported on a newborn baby When definitely indicated, this type of operation should be done Information about operations of the kind described is fully given in an article by Thorek (*J Internat Coll Surgeons* 22 134, 1954) and also in a book by Bailey (Emergency Surgery, Baltimore, Williams & Wilkins Company, 1952)

REBREATHING RESUSCITATOR FOLLOWING INHALATION OF CHLORINATED HYDROCARBONS

To the Editor —*The police-department ambulances in our city have recently been provided with the Western Reserve Inhalator and Resuscitator It is probable that a soda-lime cannister assembly will be used as part of the unit Conceivably, this equipment might be needed in cases of industrial nature where there has been inhalation of chlorinated hydrocarbon material Is there any danger that soda lime might break down chlorinated hydrocarbons, such as carbon tetrachloride or tetrachloroethylene, which would be present in the rebreathing bag and produce an irritant or poisonous product, such as phosgene? Are there any other situations in which use of such equipment by persons with only first-aid training might have unrecognized hazards?*

Harry D Baernstein Jr , M D , Racine, Wis

Answer —The Western Reserve Inhalator and Resuscitator is a pocket-size unit employing thumb size oxygen cylinders which are readily replaceable The soda-lime absorption unit is common to many rebreathing types of inhalators, so that this reply is somewhat general The purpose of the soda lime is to remove the carbon dioxide from the exhaled air At the temperature involved, it is not known whether carbon tetrachloride or closely related chlorinated hydrocarbons are modified by soda lime or whether the chlorinated hydrocarbons are absorbed or adsorbed as such The assumption is that the chlorinated hydrocarbons are rebreathed Considering the volume of exhaled carbon tetrachloride or such in a given period, it is unlikely that any evil consequences would arise, even though traces of phosgene were produced Some merit might attend the question of the preferability of an open resuscitator system in order that the exhaled chlorinated hydrocarbons might not be rebreathed

GALLBLADDER DISEASE AND CARDIAC IRREGULARITIES

To the Editor —*A patient, 65 years of age, for the past three years has had bouts of diarrhea accompanied by cramps and rectal tenesmus Also present is recurrent intermittent auricular fibrillation and at times dropped beats A thorough physical and laboratory examination is negative, except for a large stone in the gallbladder No material has been found in the literature which would incriminate the gallbladder in these two conditions Moreover, the patient has no gallbladder symptoms per se, and the gallbladder shows good functioning Is it indicated that the gallbladder should be removed surgically for the relief of auricular fibrillation and the recurrence of bouts of diarrhea?* *M D Florida*

Answer —There has been a good deal of speculation in the past about the relation of gallbladder disease to disturbances of the heart and disorders of the digestive tract Attacks of cholecystitis have been, at times, mistaken for heart attacks, and so-called heart attacks have been relieved by removal of the gallbladder In an individual of 65, a variety of conditions could be responsible for the auricular fibrillation There is no evidence that a symptomless gallstone would play a part in its origin

Cholecystitis may be a factor in causing digestive upsets and particularly periodic loose stools Cholecystitis may be associated with an achlorhydria, and this could be a factor in the diarrhea of an occasional individual Cholecystectomy might be considered in an individual of 65 who has an asymptomatic gallbladder only from the standpoint of protection of the liver and in the hope of improving digestive disturbances, but hardly in the hope of improving the cardiac status

X-RAY THERAPY FOR VERRUCA PLANTARIS

To the Editor —*What is the present prevalent opinion regarding the use of 'deep' x-ray therapy for verruca plantaris (plantar warts)? Is it felt that such therapy is more warranted if other methods have failed?* *Harrison R Hines, M D, Pittsburg, Calif*

Answer —There is considerable variation of opinion as to the advisability of x-ray therapy for verruca plantaris Deep therapy in the sense of penetrating short-wave radiation is not advisable, since such plantar warts are entirely in the epidermis The quality of radiation used is ordinarily of the "superficial" type, i e, with a half-value layer of 1-2 mm Al It is believed that there has been a steady trend away from routine x-ray therapy of verruca plantaris in the past decade The rates of cure reported vary considerably, and all such results include a psychotherapeutic component which, in the case of warts, is large with any method of treatment Under no circumstances should irradiation be given to the point of even slight atrophic changes, on pressure sites this may eventually lead to a painful hyperkeratotic scar Larger doses have at times in the past produced severe late x-ray changes and ulceration and have sometimes necessitated extensive plastic repair Most observers at the present time regard a total dose of 1,000 r, measured in air, sharply screened to the individual wart, as the maximum allowable dose Some clinicians, including this consultant, have discontinued x-ray therapy entirely for plantar warts, preferring to rely on methods of treatment which are entirely safe and in which there is little or no possibility of producing a painful scar that is often more disabling and painful than the original wart Possibly the most popular current method of treatment is the application of 20% podophyllin in compound tincture of benzoin to the wart, and then covering it with adhesive tape to induce some degree of maceration This application is repeated at intervals of 48 to 72 hours by the patient The treatment must sometimes be continued for periods of as long as two or three months, but results have been reasonably satisfactory in at least 85% of the cases There are, of course, many alternate chemotherapeutic methods Full-thickness surgical excision or deep electrocoagulation and curettage of warts frequently produce considerable disability after operation and almost inevitably result in a more or less painful scar on sites of pressure

ACCIDENTAL INGESTION OF WARFARIN

To the Editor —*Could the accidental ingestion of warfarin sodium be damaging to an individual? About how much would have to be ingested before symptoms occurred, and when would one expect to observe evidence of intoxication? What is the treatment?* *M D, Illinois*

Answer —The accidental ingestion of warfarin sodium, if taken in excessive amounts, could be most damaging if not catastrophic The effects would be related to the quantity taken This water-soluble coumarin derivative is readily absorbed, and the prothrombinopenic and other alterations in the clotting mechanism are rapidly induced If the quantity exceeds that generally recommended for the preparation (100 mg for the first day and 25 mg approximately every two days thereafter), dangerously low levels of plasma prothrombin and proconvertin will ensue within approximately 48 hours, and hemorrhagic phenomena, characterized by ecchymosis, or mucosal bleeding from the nose, gastrointestinal tract, urinary tract, etc, as well as into other areas of the body, may be expected Most effective treatment of overexposure to the coumarin derivatives includes (1) prompt transfusion with blood or plasma and (2) immediate administration of vitamin K_1, parenterally or orally

PREGNANCY AFTER PELVIC FLOOR REPAIR

To THE EDITOR —*In gynecologic practice one occasionally sees young women who have had children having cystocele and rectocele which cause intolerable symptoms Naturally, if these conditions are corrected surgically, a future pregnancy would not be indicated A patient who has undergone perineorrhaphy and becomes pregnant would certainly be a candidate for cesarean section With the assumption that cesarean section was elected by the patient and that the physician feared a return of her former distress, what would be the position of gynecologists as to tubal ligation at this time, the patient's consent being assumed?*

Percy J Tuthill, M D , Greenport, N Y

ANSWER —It cannot be agreed that pregnancy is contraindicated after a pelvic floor repair A deep mediolateral episiotomy performed as soon as the baby s head reaches the pelvic floor will prevent, to a great extent, a breakdown of the repair Apropos the case cited, the maternal and fetal morbidity and mortality after cesarean section though admittedly low are much greater than those which follow vaginal delivery including the possibility of recurrence of pelvic floor relaxation As a general rule young women should not be sterilized except for medical reasons A pelvic floor repair, per se is not an indication for cesarean section or for tubal ligation

HARMFUL EFFECTS OF DAILY ENEMA

To THE EDITOR —*Reference is made to the query, Harmful Effects of Daily Enema appearing in the Queries and Minor Notes section of* THE JOURNAL, *May 25, 1957, page 508 Dunning and Plum* (Am J Med **20** *789, 1956, and* Am J M Sc **233** *387, 1957) have reported that prolonged use of enemas in patients with cord lesions or with restricted potassium intake may result in the increased gastrointestinal excretion of potassium to a degree sufficient to induce severe hypokalemia*

George X Trimble, M D
1044 Belmont Ave
Youngstown 4, Ohio

The above comment was referred to the consultant who answered the original query, and his reply follows —ED

To THE EDITOR —*The possibilities of inducing hypokalemia by the prolonged use of plain water enemas are of clinical significance Loss of potassium may and does follow even the short-term presurgical preparation of the colon, as alluded to by Roberts and associates* (S Clin North America **35** *1189, 1955) and emphasized by Turell* (S Clin North America **35** *1211, 1955) because it is not generally appreciated*

Until April of this year this consultant did not know whether hypokalemia might follow the use of concentrated sodium phosphate enemas However, at the annual meeting of the American Proctologic Society held in New Orleans in April, Drs Flentie and Cherkin, during a symposium on colon physiology, stated that no loss of potassium followed the use of concentrated sodium salt enemas Confirmation of their results is necessary Parenthetically, they noted the figure of 4-135 mEq of unexpelled salt with the experimental concentrated salt enema return and warned that 'such retention may be undesirable in patients on a low-sodium regimen"—a point that is stressed in the original reply

TREATMENT OF GIARDIA LAMBLIA INFECTION

To THE EDITOR —*I wish to draw your attention to an error in the dosage of Acranil prescribed for the treatment of Giardia lamblia infection in the Queries and Minor Notes section of* THE JOURNAL *for June 29, 1957, page 1041 The first consultant recommended Acranil, 0 25 Gm a day (one-half tablet) for children under 2 years of age and 3 (0 5 Gm) tablets a day for patients over 10 years of age*

Acranil hydrochloride has the same range of toxicity as Atabrine hydrochloride, and therefore it would be toxic at the prescribed dose levels According to the files of the Sterling-Winthrop Research Institute, the acute oral LD$_{50}$ *of Acranil for mice is 780 ±70 mg per kilogram and that of Atabrine (Barlow and others* J Lab & Clin Med **30** *20, 1945) is 706± 16 mg per kilogram The dose of Acranil for the treament of giardiasis as originally used by me* (Am J Trop Med **25** *441 1945) was as follows*

Children 3 to 6 years old—1 tablet (0 1 Gm) daily for five days

Children 7 to 12 years old—1 tablet (0 1 Gm) twice daily for five days

Children above 13 years of age and for adults—1 tablet (0 1 Gm) three times daily for five days

To the best of my knowledge Acranil is not commercially available in this country It has been supplied in Germany in 100-mg tablets (not 0 5 Gm tablets) Your consultant suggested the equivalent of 15 tablets a day (of the 0 1-Gm dosage) for five days for patients over 10 years of age In my experience a single dose of 6 to 8 (0 1-Gm) tablets (administered for tapeworm treatment) caused a high incidence of violent vomiting and near collapse In view of the cumulative property of Atabrine and related acridines, I feel certain that 15 tablets a day would be unsafe

D A Berberian, M D
Sterling-Winthrop Research Institute
Rensselaer, N Y

The above comment was referred to the consultant who answered the original query, and his reply follows —ED

To THE EDITOR —*Since the original question submitted indicated a resistive case in which two courses of Atabrine' were tried, the use of Acranil was suggested Craig and Faust s "Clinical Parasitology" (ed 5, Philadelphia, Lea & Febiger, 1951, p 147) gives the suggested dose of Acranil, as does Manson's 'Tropical Diseases' (ed 14, Baltimore, Williams & Wilkins Company, 1954, p 540) Acranil is a derivative of an acridine compound The acridine dyes have been used in medicine for many years, and according to the standard books on pharmacology these products are of established low toxicity If 0 5-Gm tablets are not available, a pharmacy can put up the preparation in the desired form and dose*

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THE SEROLOGIC DIAGNOSIS OF RHEUMATOID ARTHRITIS

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and
Vol K. Philips, M.D., Columbus, Ohio

• A new test, involving the use of a suspension of latex particles, was applied to 1,606 samples of serum from 907 patients whose clinical diagnoses, whether of rheumatic disease or otherwise, had been established. The latex particles in stock suspension had a fairly uniform mean diameter of 1.17 microns. For the test they were mixed with borate buffer and gamma globulin. When the serum to be tested is added to this mixture it may or may not cause aggregation of the particles. A positive test is indicated by discernible aggregation, which can be read with the naked eye. Of 291 patients who met the clinical criteria for the diagnosis of rheumatoid arthritis, 245 (84.2%) showed positive latex fixation tests; the 46 instances of false-negative reactions have been studied. Of 414 patients with rheumatic disease other than rheumatoid arthritis, 399 (96.3%) gave negative latex fixation reactions; the 15 false-positive reactions have likewise been studied. The test was as reliable as are the various sheep cell agglutination tests now used for serologic detection of rheumatoid arthritis, and it had the advantage of being simple, very inexpensive, fast, and clinically useful.

Despite some opinions to the contrary, the diagnosis of rheumatoid arthritis in clinical practice remains very often a perplexing and vexing problem. The truth of this statement was well illustrated when the American Rheumatism Association found it necessary to set up a committee on diagnostic criteria. This committee, headed by Dr. Marion Ropes of Boston, carried out its very difficult assignment in a most thorough and commendable manner, but still felt compelled to list a set of 11 criteria from which any 5 would permit a "definite diagnosis."[1] Less certain diagnoses were permitted with less criteria, and the categories of "probable rheumatoid arthritis" and "possible rheumatoid arthritis" reveal rather pathetically a weakness and lack of certainty in the diagnosis of rheumatic diseases generally and rheumatoid arthritis specifically. The committee's efforts have already been recognized to be of inestimable value but leave no doubt of the great need for laboratory diagnostic aids which are simple, practicable, and reliably accurate to a statistically significant degree.

The erythrocyte-sedimentation rate is a time-honored and well-established laboratory aid in the diagnosis of rheumatoid arthritis, but it is wholly lacking in specificity. More recently other substances (generally referred to as acute phase reactants) such as the nonglucosamine polysaccharides and hexosamines have been reported to be elevated in rheumatoid arthritis, but these too are nonspecific, being increased in rheumatic fever and other allied diseases.[2] Probing into the area of serologic reactions led to the development of the antistreptolysin titer, which is notoriously negative in rheumatoid arthritis, the hemolytic Streptococcus agglutination test, which is not practicable and is largely lacking in any degree of specificity, and more recently the sensitized sheep cell agglutination reaction.[3] Extensive studies of this last named have led to an awareness of the existence of a specific factor in the serum of patients with rheumatoid arthritis.[3a] The refinements of the sensitized sheep cell agglutination test have decreased the percentage of false-negative results but proportionately increased the percentage of false-positive findings. The demonstration of an inhibitor of this hemagglutination by the Ziff group [3c] as well as by Heller and associates [3b] has materially enhanced the specificity and sensitivity of this test. Nevertheless, the test is extremely cumbersome, expensive, and completely impractical for routine use as a diagnostic aid in clinical rheumatology.

At the meeting of the American Rheumatism Association in Chicago in June, 1956, Plotz and Singer[4] reported the ingenious adaptation of polystyrene latex particles, which are of a remarkable constancy in cali-

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From the Division of Rheumatic Diseases, Department of Medicine, Ohio State University Health Center.

ber, to an agglutination procedure, this appears to offer great promise as a serologic diagnostic test in rheumatoid arthritis They reported a significantly high degree of accuracy, with few false-positive results After using their test for a short time, we were able to confirm in general the work of Plotz and Singer and came to realize the very great potential of their test as a routine laboratory and so necessary to the clinical diagnosis of rheumatoid arthritis Rheins modified the technique to such an extent that only a drop of serum was needed and duration and degree of incubation were reduced, the test could be read grossly and thus became an easily applied method for general diagnostic survey in rheumatic diseases This was reported by this laboratory in discussion at the American Rheumatism Association Interim Session in Bethesda, Md, Nov 30, 1956[5] We have now extended our studies to a sampling of patients of sufficient number to be statistically significant, and we consider the test to be of such great importance and value to practitioners everywhere that we are reporting these studies in detail here

Method

To date, 2,000 serum samples have been tested from 1,208 patients in the rheumatic disease laboratory of the Ohio State University Health Center Three hundred ninety-four serum samples from 301 patients are excluded from the tables to follow because the necessary information was unobtainable or inadequate to establish diagnosis The remaining 1,606 samples have been collected from 907 patients whose clinical diagnosis, of rheumatic disease or otherwise, is established All patients with rheumatic diseases have been followed by one or more of us in the arthritis division

In all cases, a definite commitment as to clinical diagnosis was made by at least one of us prior to the performance of the latex fixation test, so that no bias in clinical diagnosis was produced by positive or negative serologic results Also, the tests were performed by technicians unfamiliar with the patients' clinical diagnoses In addition, serum results and titers were recorded by a number rather than by name by the testing technician

Whenever possible, a Wintrobe sedimentation rate was performed on the same sample of whole blood from which the serum was tested by the drop latex fixation method Many of the 1,606 serum specimens are repeat samplings on patients after intervals of treatment

Classification

The 907 patients have been divided by clinical diagnoses into rheumatic and nonrheumatic groups (table 1) In the rheumatic group are included all patients whose major or minor complaint lay in a primary musculoskeletal disorder The following clinical standards were defined prior to evaluation of the test

Rheumatoid Arthritis—American Rheumatism Association criteria[1] are followed insofar as possible Included are active and inactive cases, treated and untreated, of any stage or grade, whether unaffected, partially suppressed, or completely suppressed by treatment Rheumatoid spondylitis is excluded

Rheumatoid Spondylitis—This condition was diagnosed by clinical and minimal x-ray criteria Active and inactive ("burned out") cases are included Also included for purposes of this paper are three patients with rheumatoid spondylitis in whom peripheral arthritis later developed

Osteoarthritis—This disease was symptomatic, with or without x-ray changes Included in this group are a few patients with well-defined post-traumatic arthritis Excluded, for purposes of this paper, are those patients with associated primary periarticular fibrositis

Fibrositis—Periarticular fibrositis, localized or generalized, is a symptomatic soft tissue disease of unknown or traumatic origin Included are patients with syndromes of known reflex origin such as shoulder-hand syndrome from coronary artery disease and carcinoma of the lung

Lupus Erythematosus—In this group are included only those patients with established clinical disseminated lupus erythematosus, either in remission or in relapse All but one have had positive L E cell preparations by the Hargraves technique on one or more occasions There are no patients with rheumatoid arthritis in this group

Diffuse Collagen Disease—The five patients in this group cannot be given a more correct diagnosis by clinical means All have been seriously ill with generalized connective tissue disorder, of which the arthropathy has been the least clinical concern

Infectious Arthritis—These patients had acute purulent arthritis without pulmonary disease or penetrating wound to the joint

Postgonococcic Arthritis—These patients developed sterile, purulent arthritis following culturally-proved gonococcic urethritis and vaginitis In all instances the arthritis responded to definitive antimicrobial therapy, and rheumatoid arthritis has not, thus far, appeared in any patient

Miscellaneous Diseases—Gouty arthritis, rheumatic fever (active), scleroderma, periarteritis nodosa, and Charcot joint require no further explanation of criteria for diagnosis All were established on proper clinical and laboratory grounds

In the nonrheumatic group are those patients with established clinical diagnoses other than in the rheumatic disease group Among these, however, are patients with diseases often accompanied by arthralgias (ulcerative colitis, osteoporosis, fracture into joint), diseases associated with abnormalities of serum proteins (hepatic cirrhosis, multiple myeloma), diseases comonly included among the collagen disorders (chronic glomerulonephritis, rheumatic heart disease [inactive]), and specific chronic infections (syphilis, pulmonary tuberculosis) known to produce bizarre results in some nonspecific serologic tests In 14 patients the diagnoses were unestablished, but were of nonrheumatic disease Seven patients were considered to have no disease

Technique

The technique of the drop latex fixation test is reported elsewhere[5] but is reviewed here in brief for purposes of clarity To prepare the antigen, mix 0 1 ml of stock suspension of latex particles (mean diameter 1 17 μ) with 9 5 ml of borate buffer (pH 8 2) in a test tube Add 0 5 ml of gamma globulin (poliomyelitis immune globulin containing 150 mg of gamma globulin was diluted so that each milliliter contained the recommended 5 mg per milliliter) Mix by inverting several times and store in refrigerator until needed (Usually, the antigen is used but one day, however, we have found it to be unchanged on the second and even the third day Regardless of the length of storage, it should be mixed by inverting just prior to use)

The initial dilution of all test serums is 1 20 As a routine procedure this is accomplished by mixing 1 drop of serum (no previous treatment necessary) into 1 ml of the borate buffer Frozen serum may be used Serum should be frozen if it is not to be used immediately

Two drops of each serum (1 20) to be tested are added to small culture tubes (12 by 75 mm) with disposable capillary pipets (these were found to be of fairly uniform bore—they should be long enough, 5 in , to reach the bottom of the tubes) Two drops of antigen are now added to each tube After mixing by shaking the test tube rack, incubate the tests in a 37 or 56 C water bath for 30 minutes The tubes are centrifuged (angle centrifuge) at approximately one-third speed (1,000 rpm for one minute) As soon as the centrifuge speed reaches the one-third setting, the centrifugation is discontinued and the tubes are removed and read by slanting them and observing under reflected light A positive test is indicated by discernible aggregation, a negative test by absence of aggregation Two controls are included (1) 2 drops of a known negative serum (1 20) plus 2 drops of antigen, and (2) 2 drops of buffer plus 2 drops of antigen The serum control was found to be extremely valuable, since the 1 20 dilutions of test serum have a viscosity greater than that of the buffer and lead to dubious results

All serums founds to be positive or doubtful are titrated For each titration, 9 tubes (12 by 75 mm) are placed in a rack Two drops of the buffer are added to each of the tubes but the first Two drops of the 1 20 test serum are added to the first tube (this permits an additional check on the screening procedure) and 2 drops to the second tube in the series The contents of the second tube are mixed by agitating the tube (shaking), and 2 drops of the 1 40 dilution are transferred to the third tube The mixing and transferring are repeated throughout the series Two drops from the last tube are discarded The serum dilutions range from 1 20 through 1 5,120 Two drops of the antigen are added to each tube, and the incubation (tubes are shaken first) is done as before Controls are included After centrifugation, the last serum dilution giving demonstrable aggregation (compare with controls) is the titration end-point For purposes of screening, all patients with a positive result in the first tube (dilution 1 20) are considered to have a positive latex fixation test

TABLE 1 —*Results of Latex Fixation Test in 907 Patients*

Diagnosis	No Positive	No Negative	Total No	% Positive
Rheumatoid arthritis	245	46	291	84 2
Rheumatic disease without rheumatoid arthritis	15	399	414	3 6
Nonrheumatic diseases	11	191	202	5 4
	271	636	907	

TABLE 2 —*Data on Forty six Patients with Rheumatoid Arthritis Who Had False Negative Latex Fixation Tests*

Case No	Stage	Class	Activity or Grade	Current Treatment	Sed Rate (Wintrobe)	Serums Tested No
1	1*	2	1	Steroids	14	1
2	1	1	Prodromal	Steroids	8	1
3	1	2	1	Steroids	10	1
4	1	1	1†	Steroids	7	1
5	1	1	1	Salicylates	25	1
6	1	1	Inactive	None	10	1
7	1	1	2	Gold	49	3
8	1	1	1	Gold		1
9	1	2	2	Gold	55	2
10	1	1	1	Steroids		3
11	1	1	1	None		1
12	1	1	1	Steroids	12	2
13	1‡	1	1	None		1
14	1	1	1	Salicylates		2
15	2	3	3	Steroids	33	2
16	2	1	1	Gold	30	3
17	2	1	2	Gold		4
18	2	2	2	Steroids	22	1
19	2	3	2	Steroids	53	4
20	3	2	2	Gold	40	3
21	3	2	2	Steroids		1
22	4	4	Burned out	Steroids	21	1
23	4	1	Inactive	None	6	1
24	4	1	1	None	15	1
25	2	3	2	Steroids and gold	50	1
26	1	1	1	Salicylates		1
27	2	2	3	Gold	42	1
28	1	1	2	Multiple	31	1
29	1	1	2	Steroids	53	1
30	1	1	2	Multiple		1
31	4	4	Burned out	Steroids	32	1
32	3	3	2	Multiple	26	1
33	4	3	2	Multiple	21	1
34	1	1	1	Steroids	4	1
35	3	2	2	Steroids	45	1
36	1	1	2	Steroid	20	1
37	2	1	2	Steroids	20	1
38	1	1	2	Steroids	23	1
39	3	2	2	Steroids	35	1
40	1	1	1	Salicylates	16	1
41	2	2	2	Steroids	43 20	2
42	2	2	2	Steroids		1
43	2	2	2	Steroids		1
44	4	4	1	Salicylates	5	1
45	4	3	1	Gold	21	1
46	3	1	1	Gold	6	1

* Symptoms of rheumatoid arthritis without objective evidence

† Wrist joint swelling without other objective evidence of disease

‡ No objective signs of rheumatoid arthritis

Results in Rheumatic Disease Group

Rheumatoid Arthritis—Of 705 patients considered to have rheumatic disease (table 1), 291 met the clinical criteria for diagnosis of rheumatoid arthritis Of the 291, 245, or 84 2%, showed positive latex fixation tests This compares favorably with the results of others using various sheep cell agglutination techniques for the serologic identification of rheumatoid arthritis[6]

The false-negative reactions among the rheumatoid arthritis group are tallied individually in table 2 Included are patients with stage and class of disease from 1 to 4 In many cases, however, the disease is of low grade of activity, inactive, or completely suppressed by steroids or gold therapy In some instances, this is based on clinical evidence alone In others, however, concomitantly determined sedimentation rates are relatively low or normal (One should not conclude, however, that adequate suppression by steroid or gold therapy will necessarily inhibit the latex fixation test in a patient with active rheumatoid arthritis Many of the patients with positive latex fixation tests have adequate suppression of objective activity by therapy In general, however, the greater the activity, duration, and extent of disease, the higher the titer of the latex fixation test)

Table 3 —*Results of Latex Fixation Tests in 414 Patients with Rheumatic Diseases Other than Rheumatoid Arthritis*

Diagnosis	No Positive	No Negative	Total No
Osteoarthritis	4	147	151
Fibrositis	5	156	161
Rheumatoid spondylitis	0	30	30
Disseminated lupus erythematosus	2	15	17
Gouty arthritis	0	16	16
Rheumatic fever (adults)	1	12	13
Diffuse collagen disease	1	4	5
Scleroderma	1	2	3
Postgonococcic arthritis	0	3	3
Infectious arthritis	0	2	2
Charcot s neuroarthropathy	0	2	2
Psoriatic arthropathy	0	4	4
Reiter s disease	0	1	1
Serum sickness (TAT)	0	3	3
Periarteritis nodosa (fatal)	1	1	2
Tuberculous spondylitis	0	1	1
Totals	15	399	414

Also having the negative reactions were patients with atypical or mild disease (cases 1, 3, 6, 13, in table 2) and patients with early or prodromal rheumatoid arthritis (cases 2, 4) Thus, in some of these, the diagnosis of rheumatoid arthritis could be questioned

Rheumatoid Spondylitis —Patients with proved rheumatoid spondylitis were included in this group irrespective of past or present associated peripheral joint disease Although 3 of the 30 have now some involvement of distal joints by what is clinically active rheumatoid arthritis, no patient in this entire group has had a positive latex fixation test Most have had repeated tests, with negative results This lends some support to the thesis that the two diseases are at least serologically different Similar results have been reported by others with the sheep cell agglutination technique[7]

Osteoarthritis —Of 151 patients with clinical diagnosis of osteoarthritis, 4 had positive latex fixation tests It is not known whether the false reactors represent failure of the test or incorrect diagnoses (table 4)

Fibrositis —There were 5 false-positive reactors in 45 patients with fibrositis The same questions in clinical and serologic evaluation exist in these patients as in the osteoarthritis class (table 4)

Disseminated Lupus Erythematosus —There is apparently a distinct serologic separation of patients with rheumatoid arthritis from those with disseminated lupus erythematosus In this respect the drop latex fixation test appears to offer a distinct advantage over the known sheep cell agglutination techniques, in which false-positive results frequently occur However, the two false-positive reactions in this group occurred in patients who clearly did not have rheumatoid arthritis

Scleroderma —Of the three patients with scleroderma, two, with inactive nonprogressive distral scleroderma, had a negative latex fixation test The last, a young woman with clinically active but slowly progressive scleroderma, who has never had any arthropathy, had a strongly positive latex fixation test (dilution 1 5,120) (table 4) This, of course, requires further investigation, no other comment being possible

Others —Patients with gouty or postgonococcic arthritis, infectious arthritis, syphilitic neuroarthropathy, psoriatic arthropathy, Reiter's disease, tuberculous spondylitis, serum sickness, and diffuse collagen disease all had negative latex fixation tests consistently The numbers of all but the group with gouty arthritis are too small to warrant inference It is significant, however, that the most desperately ill patients with unclassified diffuse collagen disease involving all fibrous structures, including synovial tissues, showed negative latex fixation tests None are dead, none are well, and none have settled down into clinically recognizable rheumatoid arthritis

Results in Nonrheumatic Disease Group

Many patients in the nonrheumatic group were selected because of clinical association with the rheumatic diseases, as in rheumatic heart disease, chronic ulcerative colitis chronic glomerulonephritis, osteoporosis, and healing stage of fracture into a joint Others were chosen because of known associated serologic abnormalities, i e, multiple myeloma, cirrhosis of the liver, histoplasmosis, and syphilis The remainder are patients chosen at random from inpatient services One hundred ninety-one of the 202 patients in this group had negative drop latex fixation tests Two with positive reactions had a positive serologic test for syphilis (STS) (table 5) Both had histories of adequate treatment for presumed latent syphilis (Five patients found to have a positive STS with unassociated disorders had negative latex fixation tests This will be discussed later)

Table 4 —*Titer of False-Positive Latex Fixation Test in Patients with Rheumatic Diseases Other than Rheumatoid Arthritis*

Case No	Diagnosis	Titer of Latex Fixation
1	Scleroderma	1 5 120
2	Osteoarthritis	1 40
3	Osteoarthritis	1 40
4	Osteoarthritis	1 20
5	Osteoarthritis	1 40
6	Osteoarthritis	1 40*
7	Fibrositis	1 160
8	Fibrositis	1 20†
9	Fibrositis	1 20
10	Fibrositis	1 80
11	Fibrositis	1 40
12	Rheumatic fever	1 20
13	Diffuse collagen disease	1 80
14	Disseminated lupus erythematosus	1 640
15	Disseminated lupus erythematosus	1 640
16	Periarteritis nodosa	1 80

* Weak reaction
† Repeat test negative

The remaining false-positive reactors in this group include a patient with cerebrovascular accident, one with generalized symptomatic osteoporosis, and the mother of one of the young patients with lupus erythematosus (This woman has had arthralgias and may have had rheumatoid arthritis in the past) The overall significance of the findings in the nonrheumatic group lies in the low incidence of false-positive reactors among the hospital population, even though chosen because of clinical or serologic similarity to patients with rheumatoid arthritis

TABLE 5—*Diagnoses of Patients with Nonrheumatic Disease Who Had Negative Latex Fixation Tests*

Heart disease		33
Rheumatic heart disease inactive	11	
Arteriosclerotic heart disease	9	
Hypertensive cardiovascular disease	10	
Dissecting aortic aneurysm	1	
Idiopathic pericarditis	2	
Endocrine disorders		13
Diabetes mellitus uncontrolled	6	
Thyrotoxicosis	3	
Postmenopausal osteoporosis	2	
Hypothyroidism	1	
Menopause	1	
Gastrointestinal disorders		28
Chronic gastritis	3	
Carcinoma of esophagus stomach colon	5	
Hepatic cirrhosis	8	
Ulcerative colitis	9	
Gastrointestinal hemorrhage	1	
Hepatitis infectious	2	
Renal disease		7
Chronic glomerulonephritis	3	
Chronic pyelonephritis	4	
Hematological disorder		11
Multiple myeloma	2	
Sickle cell crisis	1	
Infectious mononucleosis	1	
Drug sensitivity	1	
Splenomegaly	2	
Thrombocytopenic purpura	2	
Eosinophilia cause unknown	1	
Schonlein Henoch purpura	1	
Pulmonary disease		14
Chronic bronchitis	3	
Histoplasmosis	1	
Carcinoma of lung	1	
Pneumonia lobar bacterial	3	
Spontaneous pneumothorax	1	
Emphysema obstructive	3	
Bronchiectasis	1	
Asthma	1	
Miscellaneous		83
Fracture into joint	3	
Chronic neurodermatitis	5	
Acute respiratory disease	14	
Subacute bacterial endocarditis	3	
Rectal bleeding	1	
Mother of patient with lupus erythematosus	1	
Functional uterine bleeding	1	
Myoma of uterus	1	
Shigellosis acute	1	
Idiopathic porphyria	1	
Thrombophlebitis	3	
Cerebral thrombosis	1	
Psychotic habitus with contracture	3	
Chlorpromazine (Thorazine) hydrochloride jaundice	1	
Discoid lupus erythematosus	2	
Premenstrual edema	1	
Pemphigus vulgaris	1	
Ruptured intervertebral disk	1	
CNS disease with seizures	1	
Spondylolisthesis	1	
Exfoliative dermatitis	2	
Erythema multiforme	2	
Urticaria chronic	1	
Anxiety state	4	
No disease	7	
Diagnosis undetermined	14	
Neurosyphilis treated (paresis)	1	
Positive serology syphilitic status undetermined	4*	
Monostatic fibrous dysplasia	1	
Pregnancy	2	
Hyperemesis gravidarum	1	
Fever of unknown origin	2	

* Recorded also under another primary diagnosis

Comment

For a test to meet the needs of physicians as an aid to clinical diagnosis or estimation of disease state, it must be simple, short, easy to teach and perform, accurate sensitive, specific, reproducible, and inexpensive to initiate and carry out In addition, if such a test is considered for mass screening or survey work, the test must be stable for frozen serums, it must be adaptable to running large numbers of serums in unit time, and it must be reproducible not only by different technicians in the same laboratory but by other technicians in other laboratories The drop latex fixation test meets all these requirements except possibly sensitivity However the 16% failure of detection occurred in some early, inactive, and thoroughly suppressed cases of rheumatoid arthritis and only in an occasional instance of full-blown generalized, active, unsuppressed disease The reasons for these failures are unknown, but are experienced to a like degree by those using standard sheep cell techniques

The number of patients having false positive tests is low (26 in 616) Fifteen of these come from the nonrheumatoid rheumatic disease group (totalling 414) and 11 from the nonrheumatic group (totalling 202), suggesting that the incidence of false-positive reactions may not be greater in those with nonrheumatoid rheumatic disease than in a general hospital population

TABLE 6—*Data on Patients with Nonrheumatic Disease Who Had False Positive Latex Fixation Tests*

Case No	Diagnosis	Titer of Latex Fixation
1	Nonrheumatic mother of patient with lupus erythmatosus	1:160
2	Cerebrovascular disease	1:320
3	Osteoporosis generalized	1:5120 1:320
4	Latent syphilis treated positive STS	1:80
5	Latent syphilis treated positive STS	1:80
6	Spondylolisthesis	1:40
7	Sulfonamide reaction	1:20
8	Chlorpromazine jaundice	1:80
9	Discoid lupus erythematosus	1:640
10	Sickle cell crisis	1:80
11	Diabetic neuropathy	1:20 (weak)

* Three repeat tests were negative

Since the number of adults with active rheumatic fever was small, serums were obtained from 22 children hospitalized because of active rheumatic fever These patients were not examined by either of us, but the serums were obtained for a separate study for validation of the serologic differentiation of rheumatoid arthritis and rheumatic fever The absence of a single positive latex fixation test in this group is noteworthy

Earlier, allusion was made to positive latex fixation tests occurring in persons with known syphilis with one or more STS being positive Initial studies have failed to reveal significant correlation between serum reactivity to the antigens used for the STS and the latex antigen

In addition, 5 of 100 serums from patients with active pulmonary tuberculosis were positive by latex fixation technique Neither of these disorders should present any problem to the clinician in distinguishing them from rheumatoid arthritis, unless the rheumatic disease and infectious process coexist These findings are most interesting when considered in the light of the basic mechanism of the latex fixation test, about which literally nothing is known An interesting sidelight which should be investigated further is the occurrence of a positive latex fixation test in some cases of serologically proved syphilis There are two instances of overlap of lupus, positive STS, and positive latex fixation test in this series

Summary and Conclusions

The drop modification of the latex fixation test has been performed as a screening procedure on 2,000 serums from 1,208 patients Of 291 patients with rheumatoid arthritis, 245 had positive serologic tests, for an over-all efficiency of 84 2% There were 3 6% false-positive results among the 414 patients with nonrheumatoid rheumatic disease None of these occurred in patients with rheumatoid spondylitis, gouty arthritis, or infectious arthritis due to any cause False-positive reactions occurred rarely in disseminated lupus erythematosus, acute rheumatic fever, and in unclassified diffuse collagen disease These results compare favorably with those reported for the various sheep cell agglutination tests for serologic detection of rheumatoid arthritis

Because of ease, simplicity, speed, specificity, relative sensitivity, inexpensiveness, and adaptability to large volume work, the drop latex fixation test has been used in this study to determine its value as a single laboratory diagnostic procedure in rheumatoid arthritis It appears that the drop latex fixation test offers the only convenient specific laboratory aid to clinical evaluation of presence or absence of rheumatoid arthritis Further studies as to the mechanism and adaptability of the test are in progress Work is presently being done to adjust the test to encompass the more deliberate examination of the so-called false-negative serums If the test is found to be as consistently reliable as it appears thus far to be, its use in large clinical studies and perhaps mass-screening procedures will be indicated

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6 Footnotes 3*b* and *c* and *e*

7 Footnotes 3c and *e*

Chlorpromazine Toxicity —Chlorpromazine-induced jaundice is of the intrahepatic cholestatic type, and there is usually no associated hepatocellular damage Nevertheless, several deaths from chlorpromazine hepatitis have been reported Since the clinicopathologic syndrome of primary intrahepatic cholestasis may have diverse causes, the jaundice may offer considerable difficulty in differential diagnosis Jaundice may occur several weeks after discontinuing the drug, and it may persist for many months, irrespective of the amount of drug given In cases of obstructive jaundice in which careful questioning of the patient discloses recent intake of even small amounts of chlorpromazine, operation should be deferred until a complete investigation is made to rule out the possibility of drug toxicity The transaminase test is valuable in excluding the possibility of concurrent exposure of patients to other hepatotoxic or icterogenic agents or conditions Increased transaminase activity has been found to precede the development of jaundice from chlorpromazine During the first two months of therapy a urinalysis [should] be done for bile twice a week, and frequent white cell counts [should] be made during this period especially when fever, sore throat, or skin eruption suggests the presence of sensitivity to the drug If the blood serum appears icteric, serum bilirubin, alkaline phosphatase activity, and other liver functions studies are indicated, as all cases of toxic reactions should be carefully studied However no laboratory data can be substituted for careful, continued, clinical observation of the patient It would seem wise to avoid chlorpromazine therapy when infectious hepatitis is endemic, in the presence of liver disease, in malnourished patients, and when other potentially hepatotoxic agents have been used —Lieut Col W L Craddock, M C , U S Army (Res), Toxic Effects of Chlorpromazine, *United States Armed Forces Medical Journal,* December, 1956

ETIOLOGY OF THE TRANSIENT CEREBRAL STROKE

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• Hemiplegia, monoplegia, hemianesthesia, aphasia, and visual disturbances are all manifestations of sudden, transient focal cerebral vascular disturbances Rhesus monkeys, whose pial vessels are similar to those of man, were studied to clarify the etiology of these transient cerebral strokes The results of the experimental studies suggest it is unlikely that cerebral angiospasm can occur, but rather that the transient cerebral stroke is due to cerebral thrombosis, embolism, hemorrhage, or vascular insufficiency The concept of cerebral vascular insufficiency which explains many of the transient neurological disorders is caused by disturbances of the systemic circulation in the presence of cerebral artery narrowing

The etiology of sudden, transient focal cerebral vascular disturbances has been the subject of considerable controversy [1] Such disorders include hemiplegia, monoplegia, hemianesthesia, aphasia, and visual disturbances They occur suddenly and often disappear rapidly, sometimes within a few minutes Consciousness is frequently maintained In the absence of other obvious causes for these attacks, it has been convenient in the past to attribute them to cerebral angiospasm

Recent investigations,[1] however, have raised serious doubt concerning the ability of cerebral arteries to contract It is, of course, well known that many visceral and other arteries are capable of constriction in response to various stimuli These vessels are supplied with adequate musculature and innervation which function to narrow the arterial caliber The cerebral arteries, however, as shown by Pickering,[1b] are lacking in vasoconstrictor innervation and musculature It is difficult to see, therefore, how contraction of these vessels can occur Hence, Pickering suggested that small focal cerebral vascular disturbances might be embolic or thrombotic in origin Others have suggested that "small strokes' may be the result of minute cerebral hemorrhages The duration of dysfunction in such episodes would presumably be related to the adequacy of the local collateral circulation

Despite the evidence presented by Pickering, many clinicians still regard cerebral angiospasm as the mechanism responsible for small strokes The presumed presence of cerebral angiospasm is the basis for anesthetizing the stellate ganglion in some instances of cerebral vascular disorders This procedure is supposed to abolish or prevent cerebral vasospasm by blocking vasoconstrictor impulses to the affected vessels However, it has been postulated that anesthetization of the stellate ganglion improves the cerebral circulation by its effect on the systemic circulation or the extracranial arteries rather than by abolishing spasm of the intracranial vessels

Because of the difference of opinion concerning the actuality of cerebral angiospasm, it was decided to investigate this question experimentally The animals chosen for this study were rhesus monkeys, whose pial vessels are similar anatomically to those of man Our results differ from those of Forbes and co workers,[2] who mainly observed dogs and cats However, the interpretation and statistical significance of their results have been questioned [1a] We used monkeys because of the closer correlation of the cerebral vasculature of this species to Homo sapiens As a result of this study, it was concluded that these vessels do not constrict on direct external stimulation of various kinds, nor does active contraction occur after systemic administration of various agents

Methods and Results

Fifteen rhesus monkeys were anesthetized with pentobarbital in doses of 0 5 grain (0 032 Gm) of the drug per kilogram of body weight An opening was made in the skull, and the meninges were reflected or removed over the area to be studied In two experiments, a Lucite window was screwed tightly in place over the exposed pial surface With a special camera, photographs of the blood vessels were made, these were later projected on a screen and magnified about 500 times This magnification permitted accurate measurements of the width of the vessels and of any significant changes in their caliber

Photographs were made before and after each of the following procedures, with the camera kept in the same position throughout the experiment (1) stroking the pial surface with an applicator (fig 1) (2) application of hot and cold stimuli to the pial vessels (fig 2) (3) local application of epinephrine, (4) administration of epinephrine and arterenol intravenously (fig 3), (5) bleeding from the femoral artery, (6) blood transfusion, and (7) administration of hexamethonium (Bistrium) bromide (fig 4) The purpose of the first three procedures was to observe the effect of direct stimulation of various kinds upon the caliber of the pial vessels The last four procedures were designed to determine the effect of marked variations in systemic blood pressure

It was noted that, when ice or heat was applied to the pial blood vessels, no change occurred in the diameter of the vessels (fig 2) When the pial surface was stimulated by stroking (fig 1) or when epinephrine was applied topically, the size of the blood vessels did not change When the blood pressure was raised by the administration of epinephrine or ar-

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From the Institute for Medical Research Cedars of Lebanon Hospital (Dr Rothenberg) and the School of Medicine University of California (Dr Corday)

Read at the 10th Clinical Meeting of the American Medical Association, Seattle Nov 29 1956 terenol, the diameter of the blood vessels increased considerably (fig 3) When hypotension was produced by bleeding the animal, the blood vessels decreased in size However, if the animal was then given a transfusion, the blood vessels returned to their normal size When the blood pressure was lowered by the administration of hexamethonium bromide (fig 4), the diameter of the blood vessels was again decreased

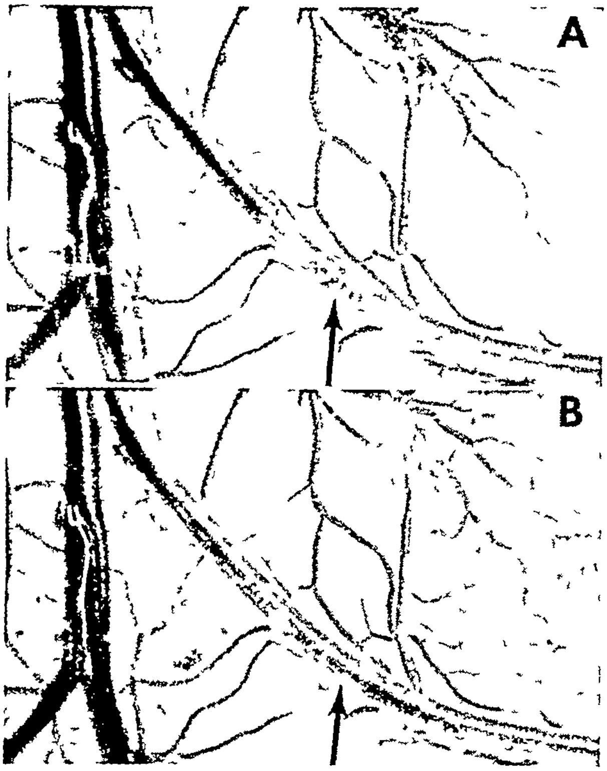

Fig 1 —Photomicrographs of pial vessels in rhesus monkey *A*, before stroking arterioles with applicator *B* after stroking arterioles with applicator Note that the vessels remain the same caliber even though the stimulation has produced capillary hemorrhages

Comment

The results of these experiments indicate that external stimulation of the pial vessels of the rhesus monkey does not produce changes in the diameter of these vessels No difference in their caliber could be demonstrated after stroking the vessels or after the application of hot or cold stimuli These findings strongly suggest that spasm of these vessels does not occur, at least not from external stimulation It is conceivable, however, that if it were possible to stimulate these vessels in the same manner from within, different results might be observed

Changes in the diameter of the pial arterioles were observed when significant changes in the systemic blood pressure were produced When the blood pressure was reduced by administration of hexamethonium bromide or by bleeding, there occurred a corresponding reduction in the size of the pial vessels When the blood pressure was raised by the administration of pressor agents or by transfusion, there was a corresponding increase in the caliber of the pial vessels These changes thus appear to be entirely passive and dependent upon the level of the pressure within the vessels

Of course, radiologists have claimed that they have demonstrated narrowing of the cerebral arteries with the injection of iodopyracet (Diodrast) compound into carotid arteries Walker,[2A] after viewing 800 cases of cerebral angiography, stated that he was not impressed that spasm of the intracranial arteries occurs and that he was unable to demonstrate spasm by using iodopyracet compound in the experimental animal In cerebral angiography the results are influenced by the techniques, the rapidity of injection of the contrast medium, systemic blood pressure, and the phase of cardiac cycle If the results are to be compared critically, all these factors must be uniform It has been demonstrated that the extracranial carotid arteries may constrict, therefore, it is theoretically possible that the radiologic changes which occur on one side of the brain might be only a reflection of the spasm of the large extracranial arteries rather than of the pial arterioles

The results of these experiments thus support the view that cerebral angiospasm does not occur, at least in the pial vessels When variations in the caliber of these vessels were observed, they invariably followed changes in systemic blood pressure This finding is in accord with the phenomenon of cerebral vascular insufficiency described by us and our co-workers[3] in 1953 Interest in this subject was aroused by the observation of sudden hemiplegia in a patient who had just suffered a severe gastric hemorrhage associated

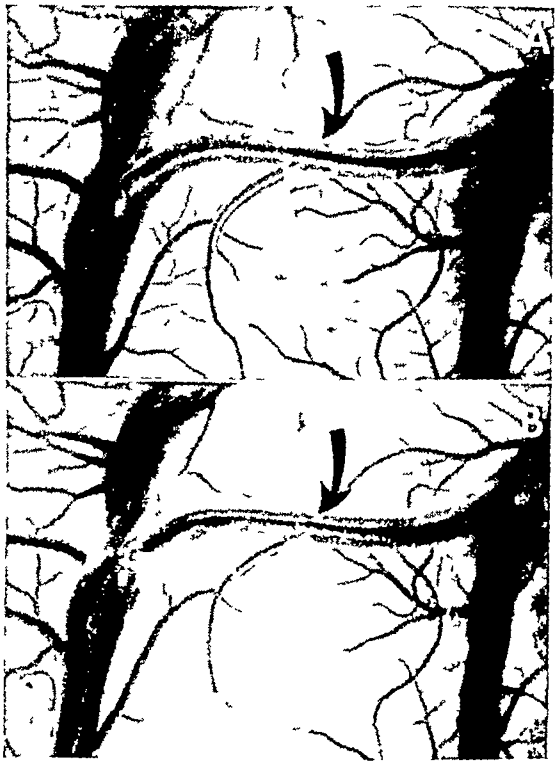

Fig 2 —Photomicrographs of pial vessels in rhesus monkey *A*, before application of ice to surface of brain *B*, after application of ice to surface of brain Note that the caliber of the arterioles does not change

with a marked fall in blood pressure As soon as the blood pressure was restored to normotensive levels, the hemiplegia disappeared

This observation led to a series of experiments in the monkey designed to elucidate the mechanism of this phenomenon [1a] It was shown that transient electroencephalographic abnormalities occur when systemic hypotension is produced in animals whose carotid arteries were narrowed on one side by a graduated occlusive clamp It was further demonstrated that the electroencephalographic changes could be reversed when the animal's blood pressure was restored to normal by transfusion or by the administration of vasodepressor drugs It was shown that the electroencephalographic changes were due to the drop in blood pressure itself and not to anemia Thus it appeared that a condition closely analogous to coronary insufficiency can occur with respect to the cerebral arterial system, and because the physiological phenomenon resembled that which occurs in the myocardium with narrowing of the coronary vessels, we termed the condition "cerebral vascular insufficiency

Many observers have reported cases in which transient or permanent focal and generalized signs or symptoms *occurred in the presence of occluded cerebral* arteries [4] However, this was the first time that it could be demonstrated experimentally that reversible ischemic signs could develop in the brain due to narrowing of the cerebral vessels without complete occlusion [3] In these studies, the development of cerebral ischemia (infarction) would seem to result from inadequacy of the collateral circulation in the presence of hypotension On the contrary, when the pressure was maintained at normotensive levels, the collateral blood flow was apparently capable of preventing the occurrence of significant ischemic changes in the region usually supplied by the narrowed artery

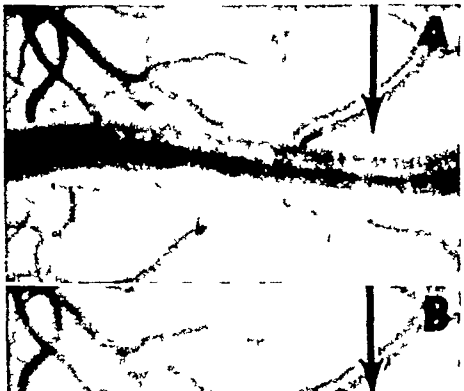

Fig 3 —Photomicrographs of pial surface in rhesus monkey, demonstrating that the arterioles of the brain increase in caliber as the systemic blood pressure is raised by parenteral administration of epinephrine A before administration of epinephrine, blood pressure 96 mm Hg B, after administration of epinephrine blood pressure 130 mm Hg

The results of the experimental studies strongly suggest that localized narrowing as the result of arteriosclerosis or congenital defect would predispose the patient to focal neurological changes in such form as hemiplegia and hemianesthesia when a hypotensive state occurs or when there is a disturbance of systemic hemodynamics The immediate factor responsible for these focal cerebral changes is a deficiency of systemic blood pressure required to sustain the capillary blood flow necessary to permit adequate cerebral cell metabolism When the blood pressure is normal, the capillary pressure distal to the narrowed or obstructed vessels is sufficient to supply the demands of cellular metabolism The cells of the nervous system are particularly vulnerable to nutritional deprivation, their blood supply cannot long be withheld without the occurrence of severe and irreversible damage It is well known that generalized cerebral effects can result from hypoxemia, hypoglycemia and anemia per se without a hypotensive state being present However it should be emphasized that the localized changes of cerebral vascular insufficiency occur mainly as a result of hypotension a diminished cardiac output, or a diversion of systemic blood flow to the extremities These focal changes include convulsive seizures, focal paralysis, aphasia, astereognosis, unilateral blindness, homonymous hemianopsia, hemianesthesia, and hemiplegia However, if the condition is of a more severe nature, general cerebral signs such as confusion syncope, and coma may result

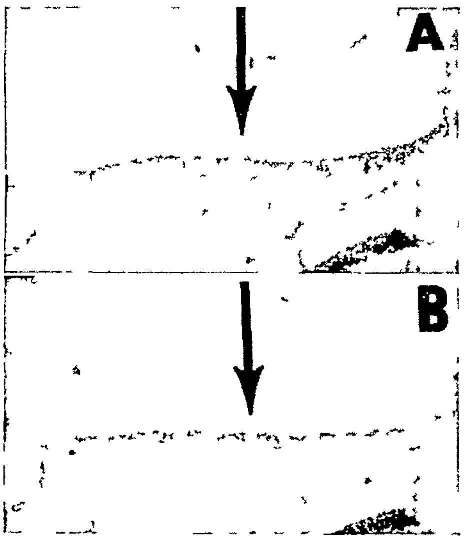

Fig 4 —Photomicrographs of pial arterioles in rhesus monkey demonstrating that arterioles decrease in size as systemic blood pressure is lowered by administration of hexamethonium (Bistrium) bromide A, before administration of hexamethonium blood pressure 132 mm Hg B, after administration of hexamethonium blood pressure 54 mm Hg

The concept of cerebral vascular insufficiency would appear in many instances to offer a more satisfactory explanation for transient cerebral disturbances than has previously been advanced This seems especially true in cases in which the same vessel is repeatedly involved It is not likely that thrombosis or embolism with recanalization would recur several times in a single artery Nor, in view of the experimental evidence presented earlier in this paper, does it seem probable that cerebral vascular spasm is responsible for these phenomena

Cerebral vascular insufficiency may be brought about by a number of different conditions The causes are as follows (1) hemorrhagic shock, (2) coronary shock, (3) anaphylactic shock, (4) insulin shock, (5) traumatic shock, (6) antihypertensive drugs, (7) postsympathetic disorders, (8) hypersensitive carotid sinus, (9) reflex vasodepressor phenomena, (10) postural hypotension, (11) gravitational states (aviation), (12) sleep (upright position), (13) surgical procedures, (14) anesthetics, (15) cardiac arrhythmias, (16) congestive heart failure, (17) pulmonary hypertension, (18) angiography, (19) thermal vasodilatation, (20) hypothermia, (21) Valsalva's maneuver, (22) pulmonary embolism, (23) labyrinthitis, and (24) sedative-hypnotic intoxication It will be noted that the factor common to all of them is systemic hypotension, or a disturbance in systemic hemodynamics

Among the more frequent conditions leading to cerebral vascular insufficiency are hemorrhagic shock, coronary shock,[5] cardiac arrhythmias,[3a] and carotid sinus hypersensitivity[6] It has been pointed out that patients may manifest cerebral phenomena as the only presenting symptoms in the presence of acute myocardial infarction or cardiac arrhythmias In such cases, the cardiac condition may be overlooked or thought unrelated to the symptoms of the nervous system unless one is aware of the possibility of cerebral vascular insufficiency resulting from cardiac disorders

It is of great practical importance to recognize cases of cerebral insufficiency, since only prompt correction of the hypotensive state can prevent irreversible cerebral damage

In view of the absence of vasoconstrictor innervation of musculature in the pial vessels, as demonstrated by Pickering,[1b] and the results of the experiments described in this paper, it appears unlikely that primary cerebral angiospasm can occur

Conclusions

Experiments performed on the rhesus monkey suggest that cerebral angiospasm does not occur Transient cerebral strokes are due to cerebral vascular insufficiency, thrombosis, embolism, or hemorrhage Cerebral vascular insufficiency is due to either cerebral vascular narrowing or an occlusion in the presence of systemic hypotension Prompt correction of the condition causing the hypotensive state in cerebral vascular insufficiency will prevent permanent cerebral damage

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Atherosclerosis —The evidence is fairly conclusive that the circulating lipoproteins are the source of the increased lipids found in atherosclerotic vascular walls The physical state and particle size of the lipoproteins are important, probably due to the filtration properties of the vessel walls Studies of numbers of mast cells in animals and humans, and of circulating heparin levels, indicate that decreased heparin production in the body may be etiologically important in the accumulation of large amounts of circulating low-density serum lipoproteins An unfavorable chemical balance of androgen over estrogen often results in increased levels of beta lipoproteins, which appears to be the prerequisite to atherogenesis Treatment of 12 patients with 0 02 mg of ethinyl estradiol daily for seven weeks failed to produce consistent laboratory improvement Factors such as hypertension, diabetes mellitus, nephrosis, myxedema, local factors in the vascular wall, race, and eating habits unfavorably influence atherosclerosis — Col H C Gibson, Etiologic Aspects of Atherosclerosis *United States Armed Forces Medical Journal*, November, 1956

POSTERIOR PERFORATING PEPTIC ULCER

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and
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• Analysis of 100 consecutive cases of posterior perforating peptic ulcer revealed that a patient with the presenting symptom of pain, particularly steady, continuous, and severe in the upper part of the abdomen or lower thoracic or back regions, often bizarre and not characteristic of ulcer pain, may well have a posterior penetrating peptic ulcer The first indication of the presence of a peptic ulcer may be the symptoms caused by perforation The location or even the presence or absence of pain due to a posterior perforating peptic ulcer is dependent upon the depth of perforation into the pancreas When the diagnosis has been established clinically and intractability is apparent, surgical intervention should be undertaken as early as possible to relieve the patient of his severe pain and also to avoid more serious complications associated with the pancreas

This study was undertaken in view of frequent difficulties in diagnosis and management of posterior perforation as a complication of peptic ulcer, both gastric and duodenal Symptoms of perforation may occur at any time during the history of peptic ulcer in an individual case In fact, the first indication of the presence of a peptic ulcer may be the appearance of symptoms caused by perforation Conditions governing whether or not perforation is to occur are not necessarily so conventional as commonly encountered in recurrent nonperforating peptic ulcer Those ulcers that eventually perforate seem to involve a combination of "virulence" and intractability as well as constitutional or tissue susceptibility to perforation The location or even the presence or absence of pain due to a posterior perforating peptic ulcer is dependent upon the depth of the perforation into the pancreas The encroachment on adjacent viscera and somatic nerve fibers necessarily broadens and varies the extent of the pain experienced by the patient In addition, marked variation also characterizes the appearance of the objective signs

Objective Signs

The extreme degree of edema, induration, and adhesions to adjacent structures, often associated with such perforations into the pancreas on roentgenologic examination often are indistinguishable from cancer of the stomach or pancreas When bizarre pain in the abdomen, chest, and back is present, although other conditions may be given prior consideration, pancreatic penetration of posterior wall peptic ulcer should be considered in the differential diagnosis The condition should also be suspected when pain from peptic ulcer becomes intractable under well-supervised and intensive treatment This impression can be confirmed by roentgenographic demonstration of a sharply circumscribed accumulation of barium upon the posterior wall of the stomach or duodenum Under these circumstances, a sign which is almost pathognomonic of pancreatic penetration is the demonstration of a broad zone of radiolucency ("halo" effect) about the pocketed barium upon the application of pressure at the site of the lesion The usual stellate pattern of the mucosal folds visualized radiographically converging upon an ulcer crater is, in posterior perforations lost at the zone of radiolucency about the crater (fig 1) The breadth of this nonopaque zone is proportionate to the depth of the perforation and the associated inflammatory reaction Frequently, air contrast mucosal studies, with the patient supine, add convincing evidence to this diagnosis

A patient with the presenting symptom of pain, particularly steady, continuous, and severe pain in the upper part of the abdomen or lower thoracic or back regions, often bizarre and not particularly characteristic of ulcer pain, may well have a posterior penetrating peptic ulcer At one extreme, some of these patients show little, if anything, on gastrointestinal x-ray study and thus have been branded psychoneurotics At the other extreme, some of these patients show great deformity of either the stomach or the pancreas strongly suggesting carcinoma of those organs, however, this may be difficult to differentiate even at the time of exploration

Review of Cases

One hundred consecutive cases of posterior perforating peptic ulcers were analyzed Of the 78 males and 22 females with the condition, 82 were between the ages of 30 and 60 years The presenting symptom of pain was severe in 72 patients and was located in the epigastric and back regions in 91 and 23 respectively Emesis was a symptom in 51 patients, and 9 had had a previous hemorrhage Obstructive symptoms were present in 19

The diagnoses were duodenal ulcer in 66 cases, with one at first thought to be carcinoma, gastric ulcer in 29, with 5 at first clinically designated carcinoma, and carcinoma simplex in one which at first had been thought a case of gastric ulcer There was no roentgenographic examination in the remaining four patients There were five deaths, two due to peritonitis and one each to intestinal obstruction, pneumonia and cerebral infarction after a fall that occurred postoperatively

Complications and Their Prevention in Surgical Treatment

When the diagnosis has been established clinically and intractability is apparent, surgical intervention should be undertaken as early as possible to relieve

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From the Department of Surgery (Dr Adams) and the Department of Gastroenterology (Dr Ross), the Lahey Clinic the patient of his severe pain and also to avoid more serious complications associated with the pancreas The treatment of choice is subtotal gastrectomy, but the morbidity and mortality is higher in this group because of the higher incidence of serious complications primarily related to the duodenal stump or associated with the pancreas

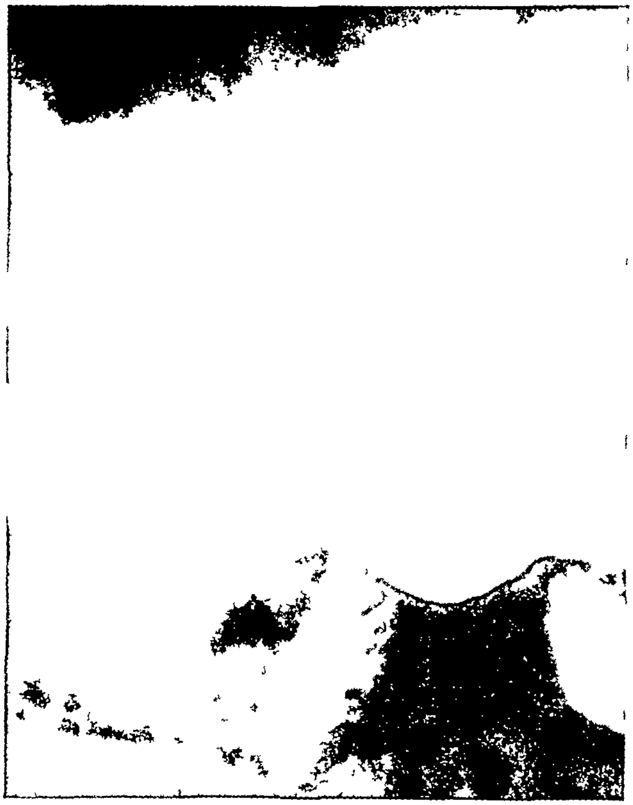

Fig 1 —Roentgenogram of posterior penetrating ulcer, demonstrating the broad zone of radiolucency (halo effect) about the pocketed barium upon application of pressure at the site of the lesion

Since in this group of complicated ulcers the chief hazards associated with resection are those relative to the pancreas and the duodenal stump, it is most apparent that one must carefully consider the basic causes for such complications and what measures can be taken to avoid them It is generally agreed by all surgeons that one should have the greatest respect for the pancreas as a potential source of serious complications when any type of surgery is being done in close anatomic relation to that important organ Any trauma, even minor, incision into, or even break in the capsule may result in either a severe pancreatic reaction or a pouring out of secretions into the surrounding tissues, with an associated potent enzymatic reaction and necrosis, delayed healing, and marked inflammatory reaction in the adjacent tissues Chemical necrosis and abscess and superimposed pyogenic infection on the resultant necrotic tissue lead to further complications Clinically, these complications are chiefly acute pancreatitis, subhepatic or subdiaphragmatic abscess on either side, biliary obstruction, pancreatic fistula, necrosis and breakdown of the duodenal stump with fistula, obstruction or leakage of the gastrojejunal anastomosis, or obstruction of either the efferent or afferent loop These complications may be single or multiple, and all will produce serious morbidity and mortality

Our experience has led us to believe that the majority of these complications can be prevented by certain technical precautions during resections of the adherent ulcers penetrating into the pancreas At the time this portion of the stomach or duodenum is mobilized from the pancreas, meticulous care should be taken to avoid damaging or opening up pancreatic tissue This can be accomplished only by careful dissection, under direct vision, of the surrounding adherent wall, with mosquito forceps and meticulous hemostasis being utilized When the actual bed of the ulcer is reached, no attempt should be made to dissect deep to it In the posterior perforated ulcer, the stomach or duodenal wall is no longer present and the base of the ulcer is represented by a granulating, sealed-off surface of the pancreas The margin of this ulcer should be carefully detached from the pancreas, with the granulated ulcer bed being left on the pancreatic surface undisturbed (fig 2)

The duodenal or stomach wall distal to the ulcer should then be carefully dissected from the pancreas until sufficient good pliable wall is developed to permit satisfactory closure of the stump This procedure should preferably be a three-layer closure a mucosal layer made by inverting continuous absorbable surgical sutures, a serosal-muscular layer made by continuous, inverting, Lembert, absorbable surgical sutures, and finally a serosal-muscular layer of interrupted Lembert sutures of silk Turning in large

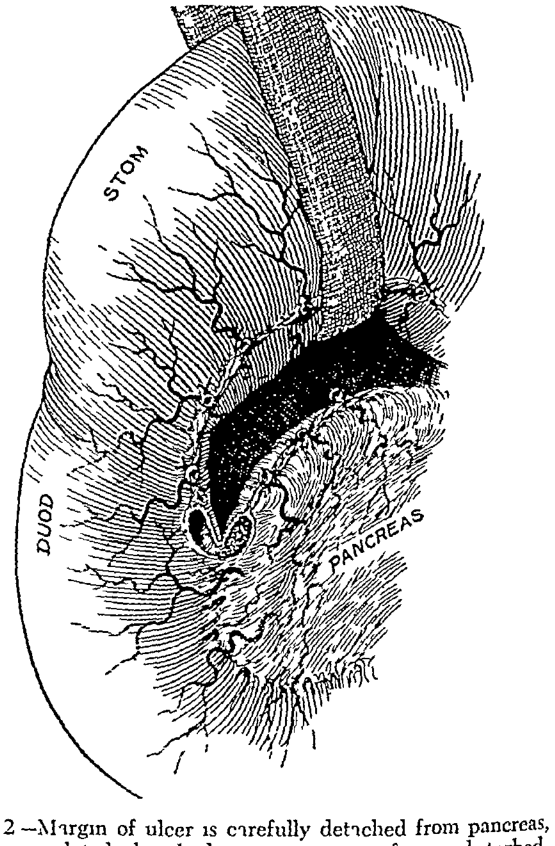

Fig 2 —Margin of ulcer is carefully detached from pancreas, leaving granulated ulcer bed on pancreatic surface undisturbed

amounts of wall with each of these layers should be avoided The completed suture line should not be buried in the pancreas, but the stump and the surrounding pancreatic surface should be covered with adjacent mesentery with interrupted sutures

The stomach is then mobilized on both mesenteric borders, with the left gastric artery and the short gastric arteries ligated so that approximately two-thirds to three-fourths of the stomach may be resected If a high resection is done, the anatomy in most patients is such that it is difficult to apply a von Petz clamp satisfactorily at this level If such a clamp cannot be used satisfactorily and in order to obtain the satisfactory hemostasis that is absolutely essential for excellent function of the gastrojejunal stoma, the following technical method has been developed The serosal and muscularis layers of the stomach are carefully incised transversely across the stomach, both front and back, at the approximate level of resection, with exposure of the large vessels as they lie in the submucosal layer These well-visualized vessels are then ligated in continuity individually with fine silk sutures (fig 3), this will control effectively the major portion of the bleeding from the transected stomach edges when this final layer is divided This avoids the difficulty of securing these vessels, which retract under the mucosa if all layers of the stomach are simply cut across

Since British investigators [1] have shown conclusively that there are arteriovenous communications in the vascular bed of the stomach wall, it is obvious why these blood vessels in the gastric wall have such high pressure and bleed so profusely and why the stomach will survive when such a great part of its major blood supply is shut off during various types of surgical procedures If any of these vessels with high pressure are not meticulously ligated in that portion of the stomach wall used for the anastomosis, there will be varying degrees of submucosal hemorrhage and hematoma surrounding the stoma, this will account for the delay in emptying the gastric stump, which delay may last for days to weeks after the operation This will necessitate prolonged tube drainage until the hematoma has been absorbed In some cases, it is possible even to demonstrate this process by visualizing with barium a smooth doughnut-like ring around the stoma In many cases, this postoperative delay in emptying of the gastric stump can be avoided by meticulous hemostasis, with the method described being used

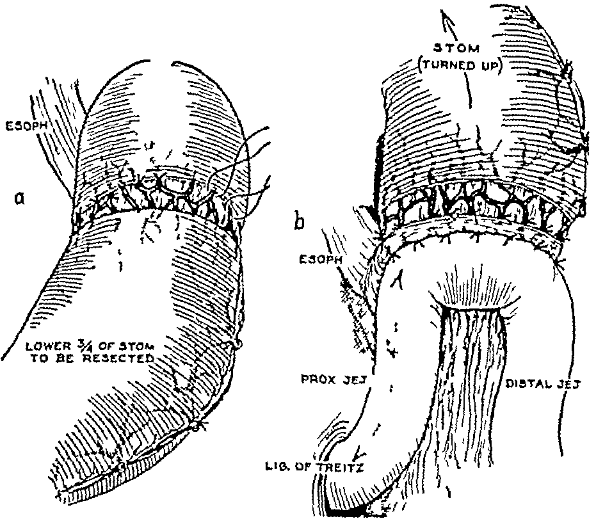

Fig 3—*A*, serosal muscularis layers incised, exposing large vessels in submucosal layer *B*, ligation of large vessels in continuity individually

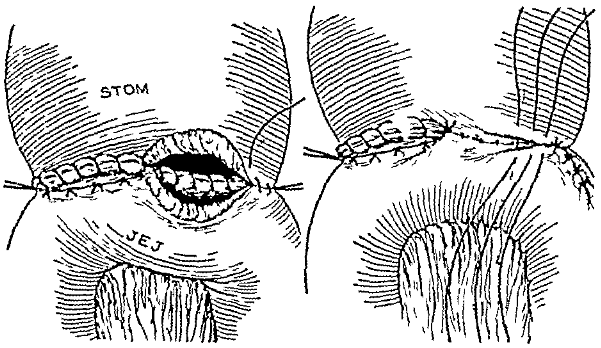

Fig 4—Completed anastomosis

Another important technical point to be discussed is the desirability or the undesirability of twisting the jejunal loop in making the union with the stomach, in other words, whether the loop is placed isoperistaltically or antiperistaltically In addition, these latter designations are confusing, and the following terminology specifies more clearly distal end of the jejunal loop to the lesser or greater curvature or, vice versa, proximal end of the jejunal loop to the lesser or greater curvature As far as function per se goes, placing the loop in either direction is entirely satisfactory We prefer not to twist the loop and to place the distal end of the jejunal loop to the greater curvature, because it accomplishes two things which placing the loop in the other direction does not (fig 3*b*)

First, it places the afferent functioning arm of the jejunal loop over in the left lateral gutter, far away from the dangerous area of the duodenal stump and uncovered pancreas, so that, if complications do occur in that area, this jejunal loop will not become involved, thus obstructing the stomach Everyone is aware that most patients will survive properly handled duodenal and pancreatic fistulas provided the stomach is not obstructed and proper nutrition can be maintained Patients in whom the afferent jejunal loop is obstructed will almost invariably be those in whom the loop is twisted with this afferent arm lying near or across the acute inflammatory reaction associated with duodenal stump or pancreatic complications A feeding jejunostomy must then be resorted to, and usually this is unsatisfactory because of the length of time essential for recovering from these serious complications Second, by not twisting the loop a shorter loop can be utilized, establishing the anastomosis closer to the ligament of Treitz, since in the antecolic anastomosis the loop slides more laterally over the splenic flexure and does not have to ride over the more bulky transverse colon Another point of importance is to suture the jejunal loop across the entire diameter of the stomach, buttressing it over the closed portion of the stomach as well, in the Hofmeister modification, so that the jejunal loop does not hang by the stoma and has a broad attachment to the stomach in both planes (fig 4)

Comment

We are fully aware that many of these technical details are of a controversial nature and that there are other excellent methods of obtaining equally good results These are factors of great importance, however, and should be stressed more than they have been in the past By means of the modifications in technique discussed and, especially, complete avoidance of even minor pancreatic injury and special technical measures to provide meticulous hemostasis at the site of the anastomosis, a high percentage of complications and poor function can be prevented

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SURVEY OF GASTROSCOPIC AND ESOPHAGOSCOPIC ACCIDENTS

REPORT OF COMMITTEE ON ACCIDENTS OF THE AMERICAN GASTROSCOPIC SOCIETY

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• *Over 890 endoscopists were asked to report accidents peculiar to their practice A report was compiled dealing with such accidents as encountered during a total of 267,175 gastroscopies and 40,540 esophagoscopies The purpose of this survey was to determine the calculated risks of these procedures and to accumulate information on the circumstances which apparently contribute significant hazards to transoral instrumentation Perforation was the main problem, but anesthetic reaction was not an inconsiderable threat The over all accident rate in cases of gastroscopy was 0 079%, and in cases of esophagoscopy, 0 25% The findings are interpreted in an effort to find ways to circumvent accidental endoscopic injury*

As one of its avowed responsibilities, the American Gastroscopic Society initiated, in 1955, a world-wide survey of experiences with gastroscopic and esophagoscopic accidents The purposes were to determine the calculated risks of the procedures, as indicated by the combined experiences of many endoscopists, and to accumulate information on the circumstances which apparently contribute significant hazards to transoral instrumentation Interpretation of the findings reported here, in efforts to find ways to circumvent accidental endoscopic injury in the future, is believed to be the privilege and responsibility of those who take an interest in the results

The data which make up this report must be evaluated cautiously There are two main potential sources of misinterpretation A questionnaire survey asks the participant for specific information, but often the circumstances surrounding an endoscopic accident are such that specific answers cannot be furnished with unquestioned accuracy For instance, the answer to the question of whether an esophageal perforation was recognized immediately or only after a delay sometimes must be based on very vague retrospective feelings about the course of events immediately following instrumentation Similarly, if the patient survives a perforation without surgical exploration, it may be very difficult to specify with any assurance the actual site of the perforation, nevertheless, the answer must necessarily appear on the question sheet as a seemingly precise bit of information

Secondly, many of the data are of such a nature that it is easy to assume that they can be compared with each other In the absence of information on the conditions which exist during endoscopy which is not attended by accidents, however, certain comparisons must not be attempted Thus, most gastroscopic perforations were made with an instrument of a certain design, but this is merely a reflection of the fact that most gastroscopists regularly employ instruments of this design, not that there is necessarily any inherent danger in it The same is true for the anesthetic agents which caused most reactions Similarly, individual accidents of the same general nature assume various degrees of severity, and many factors have a bearing the outcome If the results of surgical intervention after perforation seem better or worse than those of medical management, it is just as likely to be the seriousness of the injury as the type of treatment which made the difference

Scope

A questionnaire on gastroscopic accidents and one on esophagoscopic accidents were sent to each of 890 doctors who were known or believed to be active in endoscopic work The mailing lists were taken from the membership rosters of the American Gastroscopic Society, the American College of Gastroenterology, the American Gastroenterological Association, and the American Broncho-Esophagological Association In addition, Dr F Avery Jones of London furnished a list of the 40 British gastroscopists who had contributed to his accident survey of 1951,[1] and 40 other personal acquaintances in foreign countries were contacted

Replies were received from about one-third of the doctors who were invited to participate It was found that 204 gastroscopy and 119 esophagoscopy questionnaires from a total of 260 participants were suitable for use in the compilations The main reason for rejection of reports was unavailability of figures to show the total number of procedures carried out In particular, many of the more experienced esophagoscopists found that it was not possible to compile figures to cover their total series This report deals with the accidents encountered during a total of 267,175 gastroscopies and 40,540 esophagoscopies The geographical origins of the reports which were utilized were as follows continental United States, 224, Hawaii, 1, Puerto Rico, 1, Canada, 2, Mexico, 2, Cuba, 1, Chile, 1, Argentina, 1, Venezuela, 1, England, 9, Australia, 2, Sweden, 1, Denmark, 1, Germany, 3, Switzerland, 3, Belgium, 1, Holland, 1, Spain, 1, Hungary, 1, Austria, 1, and India, 1

The report of each gastroscopist included his whole experience with the flexible gastroscope, therefore, although experience with the rigid gastroscope was not included, the reports of the older gastroscopists went back to the earliest days of modern gastroscopy, 1932, when means of treating accidental injury were not as effective as they now are It can be seen from the figures above that about half of the reporting esophagoscopists also reported upon gastroscopy Because the trend to expand the mission of the gastroscopy clinic to encompass medical esophagoscopy is a rather recent one, most of these participants reported on many more gastroscopies than esophagoscopies Thus, many of those who have been practicing diagnostic, as opposed to manipulative, esophagoscopy were relatively inexperienced at esophagoscopy, although not at peroral endoscopy Most of the other esophagoscopists, it is important to note, reported on experiences which included a large proportion of manipulative cases, particularly foreign-body problems and transesophagoscopic dilatations Although transoral manipulative techniques other than endoscopy were not included in the survey, there were, nevertheless, transesophagoscopic manipulations in many of the cases here reported

TABLE 1 —*General Experiences of Endoscopists*

	Gastro scopists	No of Gastro scopies Performed	Esophago scopists	No of Esophago scopies Performed
Totals	204	267 175	119	40 540
No accidents	109	72 511	75	11 631
Perforations	81	172 014	42	20 659
No accidents except from anesthetic	10	13 555	2	2,250
No accidents except postexamination bleeding and/or myocardial infarction	4	9 032		
Total no who had experienced anesthetic accident	20		5	
Total no who had experienced postexamination bleeding and/or myocardial infarction	9			

General Experiences of Participants

In table 1 are set forth the general experiences of the participating endoscopists Although the majority of gastroscopists and esophagoscopists had never encountered an accident, it is seen that these were the endoscopists who had had the smallest average experience It could not be concluded that the participants had exhibited more care in instrumentation when novices than after attaining the stage of extensive experience[2] Rather, it appeared that the simple law of remote chance eventually exerted its influence after an endoscopist had carried out enough examinations Other factors which were evident in the reports were that some of the experts had exposed their patients to unusual risks by experimenting with new instruments and new techniques and that others frequently accepted for examination poor-risk patients whom, as novices, they would have rejected

Accident Incidence

The over-all accident rate in cases of gastroscopy was 0 079% and in cases of esophagoscopy, 0 25% The over-all fatality rate for patients undergoing gastroscopy was 0 014% and for those undergoing esophagoscopy, 0 059% The types and incidences of the reported accidents are summarized in table 2 Perforation was, of course, the main problem, but anesthetic reaction was not an inconsiderable threat The other accidents (postexamination bleeding and/or myocardial infarction), which were encountered only in gastroscopic experience, were those which could not be ascribed with assurance to the procedure but which, nevertheless, must be considered gastroscopic accidents because of their chronology Six patients had bleeding from the upper gastrointestinal tract within 24 hours after gastroscopy In each patient the bleeding stopped spontaneously The exact source was determined in none, and in none was the bleeding of serious import Five other patients suffered acute myocardial infarction and died The onset of symptoms occurred in one patient on the way to the gastroscopy room, during preparation of one patient, during examination of two patients, and one-half hour after gastroscopy was performed in one patient In two cases instrumentation was not carried out

Perforations During Gastroscopy

The 163 perforations experienced during gastroscopy resulted in 25 deaths Eighty-three perforations occurred in women and 76 in men (4 not stated), and 17 deaths occurred among women as compared with 8 among men The number of deaths per age decade from the third through the seventh decades were, respectively, 2, 1, 7, 10, and 5

TABLE 2 —*Summary of Accidents*

	Gastroscopy			Esophagoscopy		
	Accidents	Deaths	Autopsies	Accidents	Deaths	Autopsies
Perforations	163	25	22	95	22	10
Anesthetic	36	8	6	6	2	2
Postexamination bleeding and/or myocardial infarction	11	5	3			

The general design (not manufacturer) of instrument and type of gastroscopic tip which had been employed in the instances of perforation are shown in table 3 Because it is not known relatively how frequently the various types of instrument are used by gastroscopists, the incidence figures give no information regarding the relative safety of the various designs The instrumentation was considered by the endoscopist to have been easy in 117 cases of perforation and difficult in 38 (not stated in 8) The figures for the fatal cases were 20, 4, and 1 The accident was recognized within 30 minutes of passage of the instrument in 81 instances and only after a delay (more than one-half hour to two days) in 78 instances (not stated in 4) Among patients who eventually died as a result, recognition of perforation was immediate in 16 and delayed in 9 instances

The stomach was the most common site of perforation (table 4), and, surprisingly, a perforation in this site proved to be a moderately dangerous accident Perforation of the distal portion of the esophagus was, as expected, the most dangerous type Centimeter for centimeter, the region of the hypopharynx and adjacent proximal esophagus proved most vulnerable to perforation, although the results of treatment were especially good In two instances the jejunum was perforated during examination of the stomach postoperatively, and in another the gastroscope was passed by error into the trachea, with perforation of the right bronchus

TABLE 3 —*Type of Equipment Used in Performing Gastroscopy in Instances When Perforations Occurred*

	No	Deaths
General design of instrument		
Wolf Schindler	96	15
Hermon Taylor	46	9
Benedict	7	0
Transesophagoscopic	2	0
Schneider Cogswell	1	0
Castroflex	1	0
Not stated	10	1
Type of tip		
Rubber finger	138	22
Bullet	6	1
Sponge	1	1
Ball	1	0
Not stated	17	1

Eighty-four of the 163 cases of perforation were managed by surgical drainage, 68 by medical treatment alone, and in 11 instances the form of therapy was not stated The site of perforation had very little bearing on the decision regarding operative intervention In about half the patients with each type of perforation surgical drainage was used There were 16 deaths among the surgically managed patients and 8 among those treated medically only (one not stated)

The apparent explanations for each of the perforations, as judged by the examiner from clinical, surgical, and/or autopsy study, are outlined in table 5 The direct causes of death among the 25 perforation fatalities are shown in table 6 Although mediastinitis was the most frequent cause, *peritonitis and the late* sequels of peritonitis were common Some, but not all, of the deaths due to infection occurred during the early days of gastroscopy, prior to development of efficient antibacterial drugs

TABLE 4 —*Sites of Perforations Occurring During Gastroscopy*

	No	Deaths
Pharynx	19	1
Upper ⅓ esophagus	36	3
Middle ⅓ esophagus	3	0
Lower ⅓ esophagus	26	9
Stomach	75	12
Jejunum	2	0
Bronchus	1	0
Not stated	1	0

Perforations During Esophagoscopy

Ninety-five perforations resulting in 22 deaths were reported during esophagoscopy Fifty men and 45 women were injured, and the fatalities occurred in 13 men and 9 women The number of deaths per age decade from the first through the ninth were, respectively, 2, 0, 3, 0, 2, 8, 4, 1, and 1 (not stated in one case) The examinations which resulted in perforation were considered by the examiner to have been easy in 35 cases and difficult in 49 Eight of the former group and 9 of the latter died The information was not given for the other examinations Perforation was recognized immediately in 41 instances and not until more than one-half hour had elapsed in 54 Among the fatal cases, recognition of perforation was immediate in 9 and delayed in 12 (not stated in one)

The majority of perforations occurred through the hypopharynx and upper part of the esophagus (table 7) Proportionately, the more distal perforations proved considerably more dangerous In many instances the esophageal disease which led to the esophagoscopy appeared to be the direct explanation for the perforation The incitant proved to be a foreign body in 16 cases, carcinoma in 15, corrosive (lye) esophagitis in 11, stricture in 9, diverticulum in 4, atresia in 2, achalasia in 1, and nonspecific esophagitis in 1 There was no evident incitant in 36 cases It is important to note in this connection that in the foreign-body *cases it was often not possible for the esophagoscopist* to distinguish perforation due to the foreign body itself from that due to subsequent transesophagoscopic manipulation and that, whichever the case, these were accidents due to operative, not diagnostic, esophagoscopy The situation was rather similar in the stricture cases because, in some, the examiner had used the esophagoscope for dilatation purposes

TABLE 5 —*Inciting Lesions for Perforations Occurring During Gastroscopy*

	No
Perforation through carcinoma or ulcer	12
Blowout of carcinoma or ulcer	2
Spinal osteophytes	2
Pernicious anemia / weakened gastric wall	2
Carcinoma obstructing cardia	2
Passage of instrument through gastroenteric stoma into jejunum	2
Esophageal diverticulum	1
Leukemia weakened tissues	1
Hourglass stomach	1
Gastric adhesions	1
Passage of instrument into trachea	1
No inciting lesion or other explanation recognized	136

TABLE 6 —*Cause of Death in Patients with Perforation Occurring During Gastroscopy*

	No
Death during first few days	
Mediastinitis	10
Peritonitis	7
Tension pneumothorax	1
Simple pneumoperitoneum ? cause	1
Death during surgery for repair	
Death during anesthesia	1
Cardiac standstill	1
Death during convalescence	
Pulmonary embolus	1
Pneumonia	1
Subphrenic abscess	1
Chronic hepatic and pulmonary abscesses	1

A biopsy had been taken in 18 of the cases of perforation In one instance it was proved that the biopsy had caused the perforation Surprisingly enough, more esophagoscopic perforations were treated by medical means alone (54) than by surgical drainage (37) The method was not stated for 4 cases There were 15 deaths among patients treated medically and only 3 *among those operated on The method of treatment* was not stated for 4 of the fatal cases The causes of death of the 22 patients with esophagoscopic perforation were mediastinitis in 16 cases, empyema in 2, purulent pericarditis in 1, pulmonary embolus in 1, and pseudomembranous enterocolitis in 1 The cause was unexplained in 1 case

Accidents Related to Use of Anesthetics

Because of the similarity of techniques and agents employed experience with anesthetic accidents during gastroscopy and esophagoscopy have been combined (table 8) There were, then, a total of 307,715 cases reported on, and it is assumed that some form of anesthesia was used for every patient This assumption is not absolutely correct, but it is known from the reports and from personal inquiry among the participating group that all of the endoscopists almost always give the patient some pharmaceutical preparation—here loosely termed anesthetic—prior to instrumentation In almost all cases of reaction more than one drug was used for preparation, but, because the different ones are ordinarily used at different intervals prior to instrumentation and because reaction to those used for local anesthesia appears quickly after administration, the participants in all cases were willing to specify which drug was at fault when reaction occurred

Table 7 —*Perforations Sites of Perforations Occurring During Esophagoscopy*

	No	Deaths
Pharynx	25	1
Upper 1/3 esophagus	31	6
Middle 1/3 esophagus	14	7
Lower 1/3 esophagus	22	8

Thirty-eight of the 42 accidents were due to a local anesthetic agent, and 10 of the patients died The four reactions ascribed to other drugs used for preexamination preparation were of little consequence Information was not obtained on the technique used for inducing anesthesia (swab, spray, or gargle) or on whether epinephrine was routinely added to the anesthetic solution In 18 instances a barbiturate had been used for premedication, in 10 it had not, and for 10 the information was not stated The main clinical manifestations during the reactions were convulsions, cardiac arrest, cyanosis, sudden shock, and coma When death occurred, it did so within a few minutes Treatment in almost all cases consisted of intravenous administration of oxygen and a barbiturate, with or without artificial respiration In two instances the chest was immediately opened for manual cardiac massage, and there was one survival

Table 8 —*Accidents Related to Use of Anesthetics* During Gastroscopy and Esophagoscopy*

	Total	Deaths
No of accidents	42	10
Responsible agent		
Tetracaine (Pontocaine) hydrochloride 2%	25	5
Tetracaine 1%	8	4
Tetracaine %	2	0
Cocaine 10%	3	1
Alkaloids of opium (Pantopon) 20 mg	1	0
Morphine 15 mg	1	0
General inhalation anesthesia	1	0
Thiopental (Pentothal) sodium	1	0

* Data taken from reports on 307 715 cases in which anesthetic was used

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OUTBREAK OF ASEPTIC MENINGITIS CAUSED BY COXSACKIE B5 VIRUS

LABORATORY, CLINICAL, AND EPIDEMIOLOGIC STUDY

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• *Human and primate cells in culture were used to establish viral etiology for aseptic illnesses involving the central nervous system not proved to be polio myelitis This program of laboratory studies resulted in recognition and etiological specification of epidemic aseptic meningitis occurring in Minnesota in the summer and autumn of 1956 Tissue culture methods permitted characterization of the epidemic as an outbreak of Coxsackie virus infection restricted, as had not previously been observed, to a single immunotype This finding provides further evidence that viruses other than the three known types of poliovirus may cause clinical illness designated as nonparalytic poliomyelitis until the causative agent is recovered and identified*

Etiological distinction of human illnesses previously grouped by clinical diagnosis as nonparalytic poliomyelitis and/or aseptic meningitis recently became possible by use of tissue culture methods now widely applied to virus investigations[1] Each year since 1946, studies in this laboratory incidental to identification of more than 1,000 wild strains of poliovirus have yielded viruses of the Coxsackie B subgroup from patients hospitalized during the poliomyelitis season with symptoms clinically diagnosed as "nonparalytic poliomyelitis" Most of these diseases could be classified as aseptic meningitis In addition, from 20 to 40% of patients hospitalized with a clinical diagnosis of poliomyelitis[2] annually failed to yield poliovirus It seemed reasonable that directed study of these findings, seemingly connected only by the classification of 'nontypical polio," might lead to recognition of one

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or more specific infections Accordingly, in 1956 a program was initiated to establish viral etiology for each aseptic illness involving the central nervous system not proved to be poliomyelitis, by use of a variety of human cell strains in continuous culture together with primary monkey kidney cell cultures The occurrence of epidemic aseptic meningitis in Minnesota in the summer and autumn of 1956 and the hitherto unobserved restriction of the cause of an outbreak of Coxsackie virus infection to an agency of a single immunotype provided unique opportunity for etiological specification of a variety of the aseptic meningitis syndrome This paper reports the laboratory, clinical, and epidemiologic findings for patients from whom virus was recovered

TABLE 1 —*Serologic Response of Patients to Prototypical and Homologous Strains of Coxsackie B5 Virus*

Patient	Days After Onset	Serum Titers Against 300 to 1 000 TCD_{50} of Virus: Prototype Virus	Homologous Virus
6	0	20	20
	7	50	50
31	1	20	100
	12	250	250+
34	1	20	20
	11	100	100
55	2	10	20
	12	50	100
56	2	50	100
	12	250	250+
61	3	0	0
	10	100	50

Laboratory Methods

The program of laboratory studies was implemented on reception of materials following the 1956 poliomyelitis epidemic

Specimens —Specimens for laboratory examination were obtained immediately upon admission to hospital of each patient with a diagnosis of nonparalytic poliomyelitis as follows (*a*) fecal samples were collected in paper cartons on two consecutive days, (*b*) swabs of oropharyngeal and tonsillar areas of the throat were taken, and (*c*) samples of cerebrospinal fluid and blood were obtained aseptically Venous blood was drawn on admission and approximately 10 days later to provide acute and convalescent phase samples for antibody assay From 1 to 11 days had elapsed between onset of clinical illness and collection of specimens

Examinations for Virus —Examinations for virus were done on each specimen by use of HeLa stationary cultures as previously described [1a] Fecal extracts representative of 19 patients also were inoculated in triplicate into stationary tube cultures of (*a*) monkey kidney cells dispersed from tissue with trypsin [1b] and (*b*) human esophageal and liver cells of established and clonal strains respectively

Identification of Unknown Cytopathogenic Viruses —Identification of unknown cytopathogenic viruses was necessary in 62 instances, 47 of 109 cytopathogenic agents isolated from materials submitted during the 1956 season were identified as polioviruses Cerebrospinal fluid was obtained from 13 of the 62 patients whose fecal samples gave evidence of nonpoliomyelitic infection, throat swabs were provided by 28, and paired serum samples by 46 Each of the 62 unknown virus strains was examined by incubation of 30 to 300 tissue-culture doses (TCD_{50}) with pooled monkey antiserum for one hour at room temperature, followed by inoculation of 1-ml aliquots of serum-virus mixture into four tube cultures of HeLa cells, assays also were done with human esophageal or liver cells and monkey kidney cells as indicated The pooled monkey antiserum contained 20 antibody units to each of Coxsackie virus immunotypes B1, B3, B4, and B5 and 6 antibody units to B2 virus Cultures were inspected under the microscope daily for four days to detect cytopathogenic effect Antibody titers were calculated by Reed-Muench interpolation [3]

Antibody Assays —Antibody assays were performed on patients' serums diluted 1 10 in cell-culture maintenance medium, heated at 56 C for 30 minutes, then finally diluted 1 50 and 1 250 Test virus titers were determined on each day of test The two final dilutions of paired serums from 42 patients were tested with 100 TCD_{50}, respectively, of types 1-3 polioviruses and Coxsackie B5 virus Serum pairs from 32 of the patients were retested similarly with both 300 and 1,000 TCD_{50} of stock Coxsackie B5 (prototypical Faulkner strain) virus and/or virus isolated from the patient and with 100 TCD_{50} of Coxsackie B3 virus Serum dilutions were mixed with test virus in equal volume and incubated for one hour at room temperature One milliliter aliquots of each test mixture were transferred to four HeLa, human esophageal, human liver, or monkey kidney cell cultures washed free from medium Results were determined as in the virus identification test

Results

Virus Isolations —In the Minnesota outbreak of aseptic meningitis, Coxsackie virus strains were isolated from 62 patients who became ill between July and December, 1956 Two or more stool specimens were obtained from 45 of 61 patients excreting Coxsackie B5 virus 37 patients exhibited virus in each of 2 specimens, while each of five patients gave one negative specimen Of three stool specimens from one patient, only the later two contained virus, one patient gave four specimens all containing virus, while another submitted four samples of which only the first contained virus Coxsackie B5 virus was isolated from stools collected as early as one and as late as 13 days after onset of illness B5 virus was found in throat washings from 15 of 28 patients from whom specimens

TABLE 2 —*Serologic Relationship of Six Minnesota Strains of Coxsackie B5 Virus to Prototype Strain*

Virus from Patient No	Days After Onset	Antibody Titers of Serum From: Homologous Patient	Patient 61	Control Monkey
6	0	20	0	1 000
	7	100	20	
31	1	100		5 000
	12	250+		
34	1	20		1 000
	11	100		
55	2	20	0	5 000
	12	100	100	
56	2	100		5 000
	12	250+		
61	3	0	0	5 000
	10	50	50	
Prototype virus			0	5 000
			100	

* Hyperimmunized with prototype Coxsackie B5 Faulkner strain prototype virus with hyperimmunized hamster serum received from Dr Dalldorf of the New York State Department of Health yielded an antibody titer of 5 000

were obtained from 1 to 12 days after onset but was not isolated from cerebrospinal fluid Wild B5 strains isolated in HeLa cell cultures from 36 patients uniformly produced acute encephalitis and death 5 to 14 days after intracerebral injection into two or three litters of newborn mice Only one patient suffering aseptic meningitis during the 1956 season excreted virus other than Coxsackie B5 strain B3 Coxsackie virus was obtained from feces and throat washings

It was interesting to note uniform sensitivity of the HeLa, esophagus epithelial, liver epithelial, and monkey renal cells employed in comparative tests as indicators for field strains of Coxsackie B5 virus in stools of 19 patients In one instance the range of TCD$_{50}$ titers exhibited by the different cells for each virus strain exceeded the range of error typical of titrations done in this laboratory (0 3 log), but only by 0 1 log All of the cells thus were equally useful B5 virus infection in cells of the four types was reflected by cellular rounding, cytoplasmic granularity and shrinkage, nuclear pyknosis, and, finally, cell rupture and release of fragments from glass, similar to cytopathogenic effects of poliovirus infection in these cells

Neutralizing Antibody Assays —Tests for neutralization of prototypical Faulkner B5 virus by paired serums from 33 patients indicated fivefold or greater titer increases for 9 patients Four of these patients had no antibody in the first serum sample Antibody in the early serum sample from 12 patients was not followed by significantly increased titer of the second sample On test against 1,000 TCD$_{50}$ of B3 virus, paired serums from the patient yielding Coxsackie B3 virus exhibited titer increase from 10 to 50, antibody to B5 virus was absent from both early and late specimens Antibody to B5 virus was detected in serums obtained as early as the first day of illness from one patient or the second day from four patients Two patients lacked detectable serum antibody as late as 5 days from onset, although it was present 10 days later Ancillary tests showed for six patients (*a*) relative similarity of patient's serum titers for prototype B5 virus and patient's virus (table 1) and (*b*) failure of acute and convalescent-phase serums from patient 61 to distinguish prototype B5 virus from patients viruses by comparison with control monkey antiserum to prototype virus (table 2)

Epidemiologic and Clinical Findings —During 1956, Minnesota physicians reported 179 illnesses categorized as epidemic poliomyelitis to the state board of health Sixty-six patients had one or more limbs paralyzed 42 patients with paralytic and 5 with nonparalytic disease yielded viruses classified as 39 strains

TABLE 3 —*Virus in Throat Washings and Serum Antibody Levels in Sixty-one Patients Who Excreted Coxsackie B5 Virus*

Patient No	Age Yr	Sex	Days After Onset	Coxsackie B5		Poliomyelitis Antibody Titers			Poliovaccine Doses Received
				Virus in Throat Washing	Antibody Titer	Type 1	Type 2	Type 3	
1	6	M	9		100	1 024	0	0	0
			110		100	1 024	0	0	
2	2	M							0
3	5	M							2
4	15	F	7		100	0	64	0	2
			22		250	0	64	0	
5	8	F	7		100	0	0	0	2
			25		100	0	0	0	
6	11	M	0		20	4	256	256	2
			7		50	4	256	256	
7	7	M	1		20	0	0	256	0
			15		50	0	0	64	
8	6	M							0
9	17	F	8	0	100	256	64	256	2
			18		100	256	64	256	
10	7	M	1	+	250	0	64	0	2
			11		250	0	64	0	
11	24	F	6	+		0	256	0	0
			15		50	4	256	0	
			34		20				
12	6	F	4		250+	16	1 024	0	2
			14		250+	16	1 024	0	
13	5	M	19		100	0	64	0	2
			36		100	0	64	0	
14	12	F	3	0		0	0	64	0
			13			0	0	64	
15	6	M	11	0		0	0	0	0
			21			0	0	0	
16	7	F	6		50				1
			102		250				
17	8	F	9	+	100	256	1 024	1 024	2
			19		100	64	1 024	256	
18	26	F	9			16	4	16	0
			23			16	4	16	
19	16	F							0
20	28	F		0					0
21	6	F	8		50	0	0	0	0
			43		50	0	0	0	0
22	25	M	3		50				0
			17		100				
23	27	F	12	0		64	64	16	0
			22			64	64	16	
24	5	F	7		100	1 024	256	1 024	3
			22		100	1 024	256	1 024	
25	5	M	8			0	0	0	2
			41			0	0	0	
26	3	M	4						2
			42						
27	6	F	4	0		16	0	0	0
			14			64	0	4	
28	5	M	6	+	20	0	4	0	2
			16		20	0	4	0	
29	4	F							2
30	16	F	5	0		64	64	0	0
			15			64	64	0	
31	26	F	1	0	20	16	64	64	0
			12		250	4	64	64	
32	1	M							0
33	5	M	10	0	100	4	64	4	2
			20		100	4	64	4	
34	6	M	1	+	20	256	0	0	0
			11		100	256	0	0	
35	45	M		+					0
36	16	M							0
37	8	F	6	0		64	4 096	64	1
			16			64	1 024	64	
38	20	M	10	0	100	16	1 024	0	0
			19		100	16	1 024	0	
39	13	M	5	+	0	4 096	4 096	1 024	1
			15		50	4 096	1 024	1 024	
40	8	M	5	+	100	0	0	0	0
			15		100	0	0	0	
41	15	F	8	+		1 024	1 024	4	2
			46			1 024	1 024	4	
42	14	M	7	+	100	256	64	1 024	2
			17		250	1 024	64	1 024	
43	19	F	5		0	256	16	0	1
			15		50	64	64	0	
44	27	F							0
45	9	M	3	+	0	1 024	16	256	2
			13		20	256	16	256	
46	7	M							1
47	7	M	11			64	64	256	0
			37			256	64	256	
48	5	M	9		250				2
			79		250				
49	6 mo	F							1
50	36	F	3			0	64	0	0
			11			0	64	0	
51	8	F	1	0	10	64	16	0	2
			11		10	64	64	0	
52	27	F	9	+	100	0	64	4	0
			19		250	0	64	4	
53	1	M							0
54	9	M	3		100	1 024	16	256	2
			20		250+	256	16	256	
55	10	M	2	+	10	64	16	4	0
			12		50	64	16	64	
56	3	M	2	+	50	4	256	16	0
			12		250	16	256	4	
57	7	M							2
58	25	M	6			0	0	0	0
			23			0	0	0	
59	4	M							2
60	7	M	4			16	1 024	16	2
			14			16	1 024	16	
61	44	F	3		0	16	0	1 024	0
			10		100	16	0	1 024	

of type 1 and 8 strains of type 3 poliovirus The 113 patients with no indication of paralysis, with various diagnoses, including nonparalytic poliomyelitis,' 'suspected meningitis,' virus meningoencephalitis,' "suspected lymphocytic choriomeningitis,' and 'aseptic meningitis,' yielded 62 viruses other than poliovirus Identification of 61 of these agents as Coxsackie virus, immunotype B5, indicated that epidemic aseptic meningitis had resulted from infection by a single Coxsackie virus Evidence against concurrent poliovirus infection was given by (*a*) failure to isolate poliovirus from any of the 61 patients with aseptic meningitis who yielded Coxsackie B5 virus, (*b*) insignificant changes in titer of antibody in 42 paired samples of patients' serum to types 1-3 poliovirus (table 3), and (*c*) occurrence of aseptic meningitis without relation to history of vaccination with formalin-inactivated trivalent poliovaccine Prior to outbreak of aseptic meningitis, 6 patients had received one injection of vaccine, 23 had received 2, and one had received 3, 31 had not been vaccinated

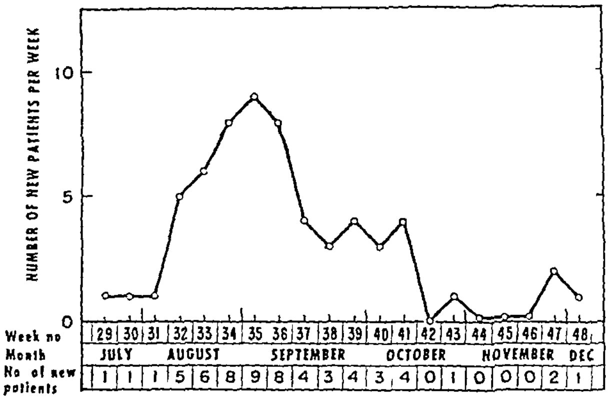

Fig 1 —Seasonal pattern of Coxsackie B5 aseptic meningitis in Minnesota in 1956

The 61 patients with aseptic meningitis from whom Coxsackie B5 virus was isolated had become ill during the seasonal period common to annual outbreaks of epidemic poliomyelitis in Minnesota (fig 1) The first patient who yielded Coxsackie B5 virus became ill on July 17, 1956 The greatest number of new patients per week was nine, between Aug 26 and Sept 1, and the onset of the last illness in this series occurred Dec 1, 1956 The age group most commonly affected (27 of 62) was from 5 to 9 years of age, the age range was from 6 months to 45 years Proved Coxsackie B5 aseptic meningitis was widely distributed through the Minneapolis–St Paul metropolitan area and rural areas, particularly of Faribault, Freeborn, and Waseca Counties in southern Minnesota (fig 2) North to Itasca and St Louis counties, occurrence was sporadic Throughout Minnesota this infection was concurrent with and independent of paralytic poliomyelitis (fig 2)

Illness of the 61 patients yielding Coxsackie B5 virus was characterized by sudden onset of fever with severe headache (49 patients), stiff neck (42 patients), stiff back (11 patients), and leg pains (9 patients) All patients were febrile on admission to hospital, and for at least 56 the temperature was known to have exceeded 100 F (37 8 C) Gastrointestinal symptoms were prominent 28 patients had one or more bouts of vomiting, 11 experienced anorexia, and 8 were nauseated A pleocytosis, predominently lymphocytic, was demonstrated for all of the 52 patients subjected to lumbar puncture Weakness or paralysis of limbs was not a feature of the aseptic meningitis syndrome

Comment

Clear-cut evidence that a single antigenic type of Coxsackie virus was etiological agent of an epidemic of aseptic meningitis in Minnesota during 1956 was provided by (*a*) laboratory isolation of Coxsackie virus immunotype B5 by use of cell cultures from 61 of 113 patients suffering nonparalytic illness during the poliomyelitis season (*b*) concurrent failure to isolate poliovirus from these patients, lack of serologic evidence for concomitant poliovirus infection, and absence of relation between illness and use of polio vaccine, (*c*) demonstration of fivefold or greater increases in titer of antibody to prototypical Faulkner B5 virus in paired serums representative of 9 of 33 patients and presence of homotypic antibody in serum samples from all but one of the remainder, and (*d*) symptoms in patients yielding B5 virus compatible with diagnosis of aseptic meningitis Etiology of the 1956 epidemic contrasts with that of previous seasonal outbreaks of aseptic meningitis, when several immunotypes of Coxsackie B virus were held responsible for clinically manifest infections Coxsackie B5 virus had not been encountered previously in Minnesota

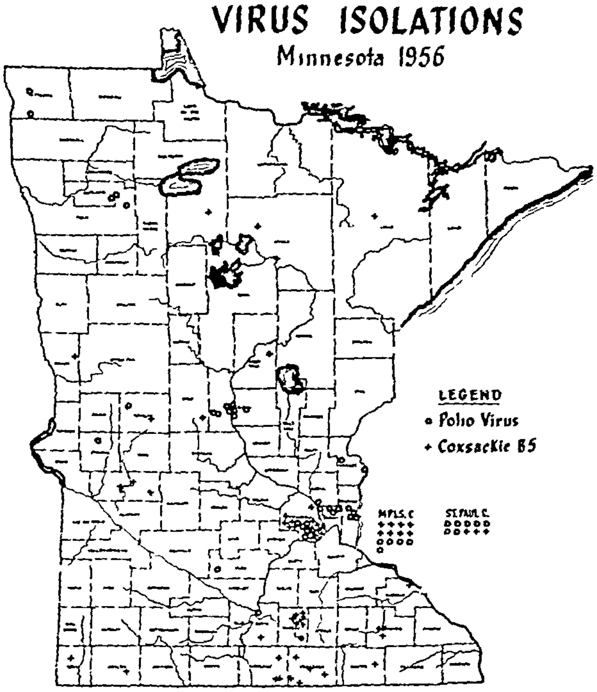

Fig 2 —Geographical distribution in Minnesota of proved cases of aseptic meningitis due to Coxsackie B5 in 1956

Cultures of HeLa cells, cells of other human strains in continuous culture, or cells of monkey kidney in primary culture were equally useful for isolation of wild strains of Coxsackie B5 virus, titers of fecal extracts did not differ significantly as measured by use of the different cells This finding agreed with our earlier experience[4]

Minnesota strains of Coxsackie B5 virus appeared to be antigenically homogeneous Similarly, McLean and Melnick[5] found that strains of ECHO-9 (enteric cytopathogenic human orphan) virus isolated in outbreaks of aseptic meningitis near Cambridge, England, during 1955 and 1956 were antigenically indistinguishable

Clinical features of illness in 61 Minnesota patients infected with Coxsackie B5 virus were similar to those reported by McLeod and co-workers[6] for 17 clinically manifest infections with Coxsackie B viruses and 11 symptomatic infections with ECHO-9 virus[5] On clinical grounds alone, the syndrome exhibited by the 61 patients infected with Coxsackie B virus could not be *distinguished from nonparalytic disease caused by infection with poliovirus* It is noteworthy that illnesses in rural Minnesota from infection with Coxsackie B5 virus occurred in areas free from paralytic poliomyelitis

Results of this study provided further evidence that viral agents other than three known types of poliovirus may cause clinical illness designated as nonparalytic poliomyelitis until the causative agent is recovered and identified The number of etiological agents of aseptic meningitis[7] clinically indistinguishable from nonparalytic poliomyelitis has been found in recent years to include Coxsackie B types 1-4,[8] ECHO viruses types 6[9] and 9,[10] and possibly Coxsackie A7 and other viruses[11]

Summary

Coxsackie B5 virus was isolated from 61 patients in Minnesota who were ill with aseptic meningitis between July 17 and Nov 24, 1956 Titers of antibody in 32 patients confirmed infection with Coxsackie B5 virus Paralytic poliomyelitis was not encountered in rural localities where patients were suffering from aseptic meningitis, and serologic findings showed that these 61 patients were not concomitantly infected with poliovirus

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We are grateful to Dr Paul Ellwood and staff of the Elizabeth Kenny Institute and to physicians on service at University of Minnesota Hospitals for their cooperation and to Dr Robert Barr, medical director of the state health laboratory, for permission to relate results of our laboratory studies to composite epidemiologic findings for the entire state

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Hiatal Hernias —Refinements in diagnostic technics, particularly roentgenographic and esophagoscopic, have established hiatal hernias as one of the most common lesions of the gastro-intestinal tract, perhaps second only to duodenal ulcers Marked differences of opinion exist, however, concerning the frequency with which these hernias produce symptoms Roentgenologists, who frequently observe hiatal hernias during the performance of upper gastro-intestinal visualization as an incidental finding, probably minimize the importance of the lesion Conversely, surgeons, often consulted after dangerous complications are apparent, could easily conclude that all hiatal hernias are dangerous Studies of large series of cases indicate that approximately 50 per cent of patients with demonstrable hiatal hernias have significant symptoms This is a relative figure, since the definition of significant symptoms might vary widely and the eventual outcome is unknown—B Blades, M D, and E R Hall, M D, The Consequences of Neglected Hiatal Hernias, *Annals of Surgery,* June, 1956

SERUM PROSTATIC ACID PHOSPHATASE LEVELS IN PATIENTS WITH CARCINOMA OF THE PROSTATE

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• It is felt that determination of the prostatic acid phosphatase level has not been of value in diagnosing early carcinoma of the prostate However, as this particular carcinoma becomes more widespread, elevation of the prostatic level does appear Patients with a persistent elevation of the prostatic acid level above 0 7 units per 100 cc, in whom the diagnosis of carcinoma has been made histologically by biopsy, should be strongly suspected of having metastases, even though clinically the disease appears to be localized This finding, therefore, would weigh heavily against surgery, other than for the purpose of palliation

Within recent years considerable enthusiasm has been expressed over use of prostatic serum acid phosphatase levels in the clinical evaluation of patients with carcinoma of the prostate Since the original investigation of Gutman and Gutman [1] in 1938 the total serum acid phosphatase level has been a useful guide in the diagnosis of prostatic cancer Further specificity was given to this enzyme system when Abul-Fadl and King [2] demonstrated a distinct difference between the acid phosphatase of prostatic origin and that produced by the liver, spleen, and red blood cells The hydrolysis of phenyl phosphate by the acid phosphatase enzyme was found to be partially inhibited by the addition of L-tartrate, and it was postulated that the portion that was inhibited was produced by the prostate Subsequently, their work was extended and given clinical application by Fishman and Lerner [3] They reported that all patients with active carcinoma of the prostate demonstrated an elevated prostatic fraction, and, recognizing the possible value of the test in the differential diagnosis of carcinoma of the prostate, they suggested that the prostatic fraction might be elevated in patients exhibiting a normal total acid phosphatase level

Other investigators since have studied this enzyme system, and a multitude of claims and counterclaims have been made for the clinical significance of its levels At present, it is well established that there is an elevation of the serum acid phostatase level in about 80% of patients with untreated metastatic carcinoma of the prostate and this elevation is a reflection of the increased level of the prostatic acid phosphatase

From an extensive study by Cline and co-workers [4] of 1,106 patients with and without prostatic disease, it was apparent that elevation of the prostatic acid phosphatase level above 0 7 units per 100 cc showed a high degree of correlation with prostatic cancer It was also apparent, however, that there was considerable interference from false-positive values, in the order of 5 to 8% in patients with benign prostatic hypertrophy and up to 10% in a group without malignant disease Moreover, they reported finding elevations above 1 5 units per 100 cc only in prostatic carcinoma The sources of error resulting in these falsely high values have been recently reviewed by Ozar and co-workers [5] and include such factors as hemolysis, deterioration of the specimen due to time and heat, previous x-ray therapy, prostatic manipulation, human error, and other diseases associated with elevation of both the serum and prostatic acid phosphatase levels Because of this high incidence of erroneous elevations, many clinicians, failing to understand the reasons for them, became prematurely discouraged with the test and discarded it completely

With the refinement of acid phosphatase determinations and the subdivision of the level into serum and prostatic fractions, it was originally hoped that the use of this more sensitive method would permit earlier diagnosis of prostatic carcinoma Fishman and associates [6] reported that four out of a total of five patients with localized prostatic cancer showed an elevated prostatic fraction in the presence of a normal total serum acid phosphatase level The striking diagnostic implications of this became readily apparent That such elevations may be the exception rather than the rule, however was presaged in the literature much earlier when Woodard [7] found that tissue extracts of prostatic carcinoma contained considerably less acid phosphatase than normal gland tissue This has recently been corroborated by Marberger and co workers [8] In view of this, it would be difficult to postulate the presence of an elevated prostatic acid phosphatase level in all cases of minimal carcinoma In fact one wonders if the disease actually must not be rather extensive before detectable elevations exist

Finally, the significance of serum and prostatic acid phosphatase levels in the long-term management of patients with carcinoma of the prostate must be raised It has been held that the prostatic fraction provides a more sensitive index of prostatic cancer activity than does the total serum level in patients on hormonal therapy and, therefore, is of superior clinical importance

Because our data seemed at variance with some of these previous observations and, yet, because we feel there is definite merit in prostatic acid phosphatase determinations, the present study was undertaken In an effort to establish certain positive criteria for the selection of patients upon whom these difficult laboratory studies should be done, we have chosen to evaluate the prostatic acid phosphatase level as to, first, its role per se as a diagnostic test for cancer, second, its function in detecting local as opposed to metastatic disease, and, third, its superior significance over the total level in the long-term management of patients with prostatic cancer With these questions in

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From the Department of Urology and the Chemistry Laboratory, Massachusetts General Hospital mind, 88 patients, including 79 with carcinoma of the prostate, have been studied, and it is the purpose of this paper to record our experience in these unsettled areas

Method and Normal Values

The records of the patients for this study were taken from the urologic service of the Massachusetts General Hospital, Boston, during the years 1954-1956 The selection of patients was dictated primarily by the availability of the record and the completeness of the examination Each case listed has been thoroughly investigated All diagnoses have been established by histological examination, and all cases studied have been included

The method of determining the total and prostatic acid phosphatase levels used is that described by Fishman and Lerner It involves the hydrolysis of disodium phenyl phosphate by the serum when incubated for a period of three hours at 38 C, both in the absence and in the presence of 0 2 M L-tartrate The difference found in the amount of phenol liberated represents the inhibition of acid phosphatase of prostatic origin Activity is defined as milligrams of phenol liberated by 100 cc of serum and is usually expressed as King-Armstrong units These properly should be referred to, however, as Gutman units because the analytic procedure now employed is the modification by Gutman and Gutman[9] of the King-Armstrong method for detecting alkaline phosphatase activity In this study, all determinations were done immediately after 10 cc of blood was drawn from the patient in a fasting state, and in each case, except where indicated, the test was done prior to any operative procedure

The normal values for total and prostatic acid phosphatase remain a matter for some debate The upper limit of normal for the total serum acid phosphatase was originally placed at 2 5 units by Gutman and Gutman[8] Later, they revised this figure downward to 2 0 units[9] Since then, a number of other estimates have been made, Fishman and co-workers placed the limit at 5 0 units while Day and co workers,[10] in a comprehensive survey of the problem, arrived at the figure of 3 84 units Mathes and co-workers[11] state that 3 5 units should be the maximum, and we are inclined to agree with this figure As regards the prostatic acid phosphatase level, the upper limit of normal has been taken to be 0 5 units by Fishman and Lerner, 0 55 units by Day and co-workers and 0 7 units by Cline and co-workers[4] We have temporarily accepted this last figure, because of the many determinations in this range we have found in normal subjects Our normal values, therefore, are not grounded in statistical evaluations, rather they are based upon our own clinical impressions, coupled with previously reported laboratory data

Results

For the purpose of analysis and discussion, the patients have been divided into six groups, relating to their clinical status as regards the extent of the carcinoma and, in some cases, to the type of previous therapy We feel that certain trends, which as yet have not been reported, become evident from these groupings, and these are best discussed under the individual groups

Group 1—The first group is composed of patients in whom the carcinoma was limited entirely to the prostate itself, without evidence of local extension or distant metastases The results of the phosphatase studies are listed in table 1

The patients in cases 1 through 7 were ones in whom a minute focus of carcinoma was found after multiple sections were made of tissue removed at the time of prostatectomy The patients in the remaining cases, 8 through 17, were those in whom the disease was more extensive, generally involving more than one lobe It will be seen from the table that only one patient, in case 9, demonstrated an elevated prostatic acid phosphatase level of 0 8 units per 100 cc The levels in the others were well within normal range, and in every case the total acid phosphatase level was normal Thus, from a group of 17 patients with carcinoma found to be limited to the prostate itself by all available clinical, x-ray, and histological evidence, only one showed any elevation of the prostatic acid phosphatase level These data are in disagreement with certain published reports and point to the inadequacy of the test in detecting early carcinoma

TABLE 1—*Data on Serum and Prostatic Acid Phosphatase Levels in Patients with Carcinoma Confined to Prostate*

	Acid Phosphatase Levels Units/100 Cc	
Case No	Total	Prostatic
1	1 6	0 2
2	3 3	0 6
3	1 4	0 2
4	1 1	0 3
5	1 5	0 0
6	1 6	0 4
7	0 7	0 4
8	2 3	0 1
9	2 2	0 8
10	2 7	0 5
11	1 3	0 0
12	1 5	0 3
13	1 4	0 4
14	0 6	0 2
15	1 2	0 0
16	2 1	0 0
17	1 8	0 3

Group 2—A separate grouping was made of patients with further extension of the disease In these cases, either there has been invasion of the seminal vesicles demonstrated microscopically in the specimen taken during radical perineal prostatectomy, or the clinical impression of seminal vesicle invasion with cancer has been borne out by Silverman needle biopsy of the tumor mass Again, in this group there were no demonstrable distant metastases, and the remainder of the periprostatic tissue seemed free of disease by clinical or microscopic findings or both Table 2 summarizes these results and shows that, of a total of 16 patients, only 1 showed an elevated prostatic acid phosphatase level This was in the patient in case 33 who had a level of 0 8 units per 100 cc and in whom microscopic examination of a section of the biopsy specimen demonstrated tumor extending into the prostatic urethra at the line of resection None of these patients had an elevated total serum level, and the prostatic acid phosphatase levels were generally under 0 5 units per 100 cc

Group 3—Table 3 lists the data from a third group of patients, consisting of those who had distant soft tissue or bone metastases or who had very extensive local disease, with the prostate usually fixed to the pelvic wall None of these patients had any therapy, operative or hormonal, prior to the phosphatase determinations Unlike the patients in group 2, each of these patients demonstrated an elevation of the prostatic acid phosphatase level except for two patients, the patient in case 48, in whom x-ray diagnosis of metastasis was not clearly established, and the one in case 34, who showed a normal prostatic level and elevated total serum level Unfortunately, the determinations were not repeated Two of these 15 patients showed an elevated prostatic level with a normal total serum acid phosphatase level The degrees of elevation of the prostatic acid phosphatase level were quite varied and did not seem related to the extent of disease as demonstrated by x-ray It appears from this, then, that elevations of the prostatic phosphatase levels become manifest only when there has been considerable local extension or distant metastasis of the disease In several of these patients, there was marked elevation of both the total and prostatic phosphatase levels in the presence of nodal but not bony metastases, indicating either that elevations can occur without metastasis to bone or that the metastases were too small to be demonstrated roentgenologically

TABLE 2—*Data on Acid Phosphatase Levels in Patients With Carcinoma of Prostate With Involvement of Seminal Vesicles but Without Other Extension or Known Metastasis After Operation Procedures*

Case No	Operation	Acid Phosphatase Levels Units/100 Cc	
		Total	Prostatic
18	Radical perineal prostatectomy	0 5	0 2
19	Silverman needle biopsy	2 0	0 6
20	Silverman needle biopsy	1 0	0 1
21	Perineal biopsy	1 6	0 6
22	Silverman needle biopsy	1 4	0 0
23	Transurethral prostatic resection	0 5	0 2
24	Radical perineal prostatectomy	1 8	0 5
25	Silverman needle biopsy	1 3	0 3
26	Silverman needle biopsy	1 6	0 0
27	Silverman needle biopsy	1 2	0 4
28	Silverman needle biopsy	1 2	0 2
29	Silverman needle biopsy	1 6	0 2
30	Radical perineal prostatectomy	1 4	0 3
31	Radical perineal prostatectomy	1 9	0 2
32	Radical perineal prostatectomy	1 6	0 1
33	Radical perineal prostatectomy	1 8	0 8

TABLE 3—*Data on Acid Phosphatase Levels in Patients with Extensive Local Disease or Distant Metastasis Who Had Not Undergone Therapy Prior to Determinations*

Case No	Clinical Status	Acid Phosphatase Levels Units/100 Cc	
		Total	Prostatic
34	Extensive bony metastases	5 2	0 7
35	Cervical node metastases	2 3	1 1
36	Spine and pelvic metastases	24	23 5
37	Rib metastases	12 1	12 1
38	Cervical node metastases	6 9	3 7
39	Pelvic metastases	13 8	10 2
40	Extensive bony metastases	3 2	1 0
41	Extensive bony metastases	11 5	4 6
42	Prostate fixed to pelvic wall	10 8	8 9
43	Extensive bony metastases	21 9	14 4
44	Extensive bony metastases	24 6	20 1
45	Extensive local disease	2 3	0 9
46	Prostate fixed to pelvic wall	2 9	1 2
47	Bone metastases	9 8	8 5
48	Extensive local disease and possible spine metastases	1 5	0 2

Group 4—Group 4 comprises the largest single group and consists of patients with carcinoma of the state who previously had hormonal therapy or orchiectomy or both prior to the acid phosphatase determinations Without exception, each of these 21 patients, at the time of the phosphatase studies, was considered to have progressing disease even though there may have been an initial remission due to the endocrine therapy They were hospitalized at this time because of severe bone pain or obstructive symptoms from local recurrence The diagnosis of carcinoma was established at the time of the initiation of therapy by Silverman needle biopsy in all patients who either had undergone bilateral orchiectomy or had simply received estrogen therapy The duration of estrogen therapy is difficult to assess, but in most cases it was continued from the beginning of therapy until the acid phosphatase study was made

The data from this group are summarized in table 4 From a total of 21 patients, only 5 demonstrated elevated serum acid phosphatase levels, and each of these had a concomitant elevation of the prostatic fraction Three of the remaining 16 had an elevated prostatic level and a normal total serum level, and the rest of the group had normal values for both Again, there seemed to be no correlation between the extent of elevation and the extent of the disease as seen clinically One of the patients with the most extensive disease, case 62, showed only an elevation of the prostatic level to 0 9 units per 100 cc with a normal serum level These data therefore suggest that once there is a remission due to hormonal therapy, with subsequent further progression of the disease, there need not be a secondary elevation of the prostatic level Each of these patients was considered to have extensive disease initially, and presumably at least 80% would have shown elevations of the prostatic acid phosphatase level when therapy was begun The fall to normal levels is indicative of successful hormonal control of the disease, but that these levels failed to rise again in 13 out of 21 patients in clinical relapse points to the inadequacy of the test in follow-up of patients through remissions and exacerbations

TABLE 4—*Data on Acid Phosphatase Levels in Patients with Prostatic Carcinoma Who Had Received Previous Hormonal Therapy or Had Undergone Orchiectomy and Are Now in Exacerbation*

Case No	Type and Year of Previous Operation	Year of Estrogen Therapy	Acid Phosphatase Levels Units/100 Cc	
			Total	Prostatic
49	TUR* and orchiectomy 1950		3 5	1 0
50	Orchiectomy 1952	1952	4 6	0 8
51	Orchiectomy 1954	1953	20 6	18
52	Orchiectomy 1950		21 3	14 3
53	Orchiectomy 1947		0 2	0 1
54	Orchiectomy 1951	1951	2 0	0 3
55	TUR* and orchiectomy 1953		3 0	0 0
56	Orchiectomy 1951	1951	2 4	0 1
57	TUR* and orchiectomy 1953	1953	1 0	0 3
58	Suprapubic prostatectomy and ochiectomy 1948		1 4	0 3
59	Orchiectomy 1947	1947	1 4	0 9
60	Orchiectomy 1952	1952	0 9	0 1
61	Orchiectomy 1951	1951	1 5	0 5
62	TUR* and orchiectomy 1952	1952	2 6	0 9
63	TUR* and orchiectomy 1954		2 3	0 0
64	Orchiectomy 1943	1943	0 7	0 4
65	Radical perineal prostatectomy 1952	1943	17 2	13 3
66		1951	10 1	6 9
67	TUR* and orchiectomy 1950		2 3	1 4
68	Orchiectomy 1954		2 1	0 0

* TUR transurethral prostatic resection

It has been postulated that the prostatic acid phosphatase fraction is a much more sensitive index of tumor activity than the total acid phosphatase in patients treated by hormonal therapy Our data, however, do not bear this out Clearly, more extensive investigation of a similar group is necessary before any positive generalizations can be drawn Thus far it appears that although determination of the prostatic acid phosphatase level may be a superior test in the initial regulation of patients being treated by hormonal therapy it has not shown a similar superiority in patients who are in relapse, and, in fact, more often than not, neither the total serum or the prostatic levels will show a secondary rise with later progressive disease For the present, it would seem that the serum acid phosphatase determinations alone provide all the useful information available for the clinical management of patients with extensive disease whose conditions have been brought under successful control with hormone therapy or orchiectomy

TABLE 5—*Data on Acid Phosphatase Levels in Patients with Radical Perineal Prostatectomy with No Hormonal Therapy Prior to Determinations*

Case No	Date of Operation	Clinical Status of Patient at Time of Acid Phosphatase Determination	Acid Phosphatase Determination: Date	Total Units/ 100 Cc	Prostatic Units/ 100 Cc
69	11/13/48	Local recurrence	10/18/[illegible]	1 [illegible]	0 2
70	12/31/51	Bony metastases	10/[illegible]	1 7	0 [illegible]
71	3/27/54	Bony metastases	[illegible]	2 7	1 [illegible]
[illegible]	1947	No evidence of recurrence on TUR† or x-ray examination	10 [illegible] 5		3 3
73	1951	Extensive bone and lymph node metastases*	7/1[illegible]	35	[illegible] 6
74	1951	Local recurrence and bone metastases	[illegible] 5	2 0	[illegible] 3
	1949	No evidence of recurrence	[illegible] 11 [illegible]	1 8	0 0
76	2/27/53	No evidence of recurrence	12 [illegible]	2 2	0 1
77	1953	Bony metastases	2/[illegible]	[illegible] 9	[illegible] 3
78	3/[illegible]/53	Bony metastases	6/ 8 [illegible]	10 2	10 2
[illegible]	4/13/[illegible]	No evidence of recurrence	4/30 [illegible]	1 7	0 1
[illegible]	4/22/56	No evidence of recurrence	8/ [illegible]	1 [illegible]	0 0

* Patient died 2 mo postoperatively and was found to have extensive bone and soft tissue metastases

† TUR transurethral prostatic resection

Group 5—Table 5 summarizes the findings in 11 patients who had been treated for prostatic carcinoma by radical perineal prostatectomy at some time in the past and who had not received endocrine therapy The clinical status of each patient, as adjudged by the same criteria for all other patients, is listed, along with the date of operation and the date and result of the phosphatase determinations Eight of these patients had a recurrence of disease A significant feature of these data appears in the fact that the four patients without evidence of recurrence showed very low prostatic fractions, 0 1 units or less per 100 cc, and it is in patients with previous radical prostatectomy that routine determination of the prostatic fraction may be worthwhile

Four of the eight patients with recurrence had prostatic acid phosphatase levels in the range of 0 2 to 0 5 units per 100 cc, and we hope to accumulate further cases to bear out our presentiment that an elevation of the prostatic level into this range in a patient who had undergone previous radical prostatectomy may serve as a useful danger signal indicating recurrence Our data thus far are merely suggestive

Group 6—The pertinent data from nine patients in whom we found an elevated prostatic fraction without evidence of prostatic carcinoma are listed in table 6 As can be seen, the follow-up studies were done at intervals of from one week to nearly a year Every patient was subjected to the same battery of studies as were all others with suspected carcinoma of the prostate In each case the acid phosphatase levels were determined one or more days after a digital rectal examination, and, in cases 85 and 86, the tests were done prior to the operation Elevations of the prostatic fraction from 0 8 to 2 5 units per 100 cc were encountered in patients with benign prostatic hypertrophy and other diseases These levels returned to normal in five of seven patients after prostatectomy, although, in cases 85 and 86, the elevations persisted It should be emphasized that the elevation in the prostatic acid phosphatase level in the patient in case 83, which was 2 0 units per 100 cc, was found the day after a Silverman needle biopsy, again pointing up the caution that must be exercised in interpreting the levels after prostatic manipulation

These data confirm the suspicion that elevations of the prostatic acid phosphatase level above 0 7 units per 100 cc are possible in patients who do not have prostatic carcinoma and that even elevations above the level of 1 5 units are not diagnostic of carcinoma That these are not merely laboratory errors is supported by the fact that certain of these elevations persisted on repeat determinations They more likely represent false positive values in patients who for unexplained reasons have a transient or persistent elevation of the level of the prostatic fraction Interestingly enough, in two of these patients the elevations did not return to normal after a simple prostatectomy

TABLE 6—*Data on Patients with Elevated Levels of Prostatic Acid Phosphatase and Without Evidence of Carcinoma of Prostate*

Case No	Diagnosis	Operation	Acid Phosphatase Determination: Date	Total Units/ 100 Cc	Prostatic Units/ 100 Cc
80	Benign prostatic hypertrophy	Suprapubic prostatectomy 12/1/54	11/30/54 12/14/54	3 0 2 5	1 2 0 6
81	Benign prostatic hypertrophy	Suprapubic prostatectomy 5/6/54	5/ 5/54 4/12/55	1 5 1 7	0 8 0 4
82	Bladder neck stricture after suprapubic prostatectomy	Transurethral prostatic resection 8/17/55	8/16/55 6/ 8/56	2 5 1 4	1 2 0 0
83	Benign prostatic hypertrophy	Silverman needle biopsy 8/25/56 and transurethral prostatic resection 8/29/55	8/26/55 6/ 5/56	2 7 2 1	2 0 0 0
84	Choroidal melanoma and benign prostatic hypertrophy	Perineal prostatectomy 9/30/55 and enucleation of tumor of right eye 10/11/55	9/23/55 9/27/55 [illegible]/ 5/56	3 8 2 7 2 0	2 5 1 3 0 1
85	Benign prostatic hypertrophy	Suprapubic prostatectomy 3/29/55	3/29/55 4/ 5/55	2 0 3 0	1 4 1 4
86	Benign prostatic hypertrophy	Transurethral prostatic resection 12/6/55	12/ 6/55 12/13/55	2 2 1 6	0 9 0 8
87	Diabetic radiculopathy		3/14/55 4/ 4/55	2 5 2 1	1 1 0 4
88	Benign prostatic hypertrophy and bleeding hiatal hernia		4/ 5/56 6/29/56	1 4 1 8	1 4 0 3

Comment

As was pointed out originally, the purpose of this study is to assess the absolute value of the prostatic acid phosphatase determinations in patients with carcinoma of the prostate Fishman and Lerner have offered the theory that the level of the prostatic fraction frequently is elevated in patients with localized carcinoma before the total acid phosphatase rises to abnormal levels, the test, therefore, would be of immeasurable diagnostic aid in evaluating patients with suspected carcinoma Our experience, however, has not borne this out In a group of seven patients with histologically proved minute foci of carcinoma, none showed abnormal elevations of the levels of either the total acid phosphatase or the prostatic fraction Of a total of 17 patients whose disease was limited to the prostate, only 1 had an elevation of the prostatic level, this being to 0 8 units per 100 cc The recognized percentage of false-positive values in this test is in the order of 4 to 8%, and this elevation is considered to be in keeping with this incidence Possibly, however, this patient has undetected distant metastases producing the enzyme, thus far our follow-up period is only two months From these data, we believe that the level of the prostatic fraction does not show elevations in patients in whom disease is limited completely to the prostate Consequently, we feel that the determination of the prostatic acid phosphatase level has not been of value in diagnosing early carcinoma Even as the disease spreads into the seminal vesicles, the prostatic level remains within the normal range As it becomes still more widespread, however, elevation of the prostatic level appears, and, in a group of 15 patients with extensive disease, 13 were found to have elevated prostatic acid phosphatase levels Four of these 13 had a normal total acid phosphatase level and, from our entire group, each patient with a substantial elevation of the prostatic level was found to have disease spread far beyond the confines of the prostate and the seminal vesicles

Several workers[12] have reported a decreased activity of the acid phosphatase enzyme in tissue extracts of prostatic carcinoma as compared with that in normal or hypertrophied glands It has been proposed that the occurrence of metastasis may be associated with the breakdown of barriers that exist in the prostate itself, preventing the escape of acid phosphatase into the circulation, and thus far our clinical evidence lends credence to this theory Qualitative differences may exist between the acid phosphatase enzymes liberated by normal and neoplastic prostatic tissue, and the hope remains that further refinements of our present methods of determination will permit earlier detection of carcinoma

For the present, we do submit the premise that the levels of the prostatic fraction as we are now able to measure them may be of extreme value in patients apparently with localized disease, histologically verified, who are about to undergo radical surgery Because of the natural history of this type of carcinoma, it is possible to have apparently well-localized disease associated with distant, extensive, and otherwise undetectable metastases It has been clearly established that only about one-half of the actual instances of bony metastases can be detected by x-ray examination We are of the opinion that patients with a persistent elevation of the prostatic acid phosphatase level above 0 7 units per 100 cc, in whom the diagnosis of carcinoma has been made histologically by biopsy, should be strongly suspected of having metastases, even though clinically the disease appears to be localized Therefore, these patients are questionable candidates for radical perineal prostatectomy, except for the purpose of palliation to avoid the distressing symptoms of bleeding, obstruction, and bladder irritation

We have not attempted statistical evaluation of these data, because our series is too small to allow valid statistical conclusions Necessarily, the experience of any single urologic service is limited, and considerable time must elapse before a sufficiently large number of case reports accumulate Because of the conflicting reports that have appeared, it becomes imperative that carefully obtained data be reported from other centers in order that investigation of these problems may be carried to a satisfactory conclusion

Summary

Eighty-eight cases, including 79 cases of carcinoma of the prostate, have been studied with reference to the value of serum and prostatic acid phosphatase levels in clinical evaluation Of a total of 17 patients with carcinoma localized to the prostate gland, only 1 had an elevated level of prostatic acid phosphatase and all had normal levels of total acid phosphatase These findings are in conflict with previously reported studies and indicate that in our hands these tests have been of little value in the detection of early carcinoma

Elevations of the levels of the prostatic fraction were found in patients with either very extensive local disease or metastasis, although demonstrable bone metastases were not present in all patients with abnormally high levels We believe that prostatic acid phosphatase levels may be of extreme value in patients with histologically verified carcinoma who are about to undergo radical perineal prostatectomy, elevations above 0 7 units per 100 cc weigh heavily against surgery because of the likelihood of existing distant metastases

Many patients with widespread prostatic carcinoma, after an endocrine-induced remission, will not have concomitant elevations in the prostatic acid phosphatase levels when the disease again becomes progressive, indicating that under these conditions the test is a poor index of tumor activity and is no better than the total serum acid phosphatase level alone The data suggest also that the test may be of value in following patients after radical prostatectomy, slight elevations above the usual very low level may indicate recurrence of disease

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12 Footnotes 7 and 8

NEW SET OF TYPE A INFLUENZA VIRUSES

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The Public Health Service has been asked to summarize for The Journal *some of the technical information currently available about the new influenza situation The Communicable Disease Center of the Public Health Service maintains a Respiratory Disease Unit in the Virus and Rickettsia Section in Montgomery This unit is responsible for the World Health Organization International Influenza center for the Americas As chief of this unit, many of the observations made concerning the new viruses have been communicated to the author of the following article by investigators in virus laboratories elsewhere, especially those at Walter Reed Army Institute of Research, the School of Public Health in the University of Michigan, and the influenza centers in London and Geneva The earliest data and evidence derived by teams of U S Army investigators have been reported*[1] *Priority and responsibilities for each observation will be established in this conventional manner with publication of completed studies by the individual investigators in suitable journals* —Ed

• *Four major immunological types of virus (A, B, C, and D) are now known to cause influenza, each comprises a completely distinct group Within type A are variants with marked antigenic differences, and groups of these strains comprise sets or families In May, 1957, representative strains from a new set, now termed Far East (FE) or Asian influenza A were isolated from epidemics of influenza in Singapore Only slight antigenic similarity is evident between the FE viruses and other type A influenza strains Serologic diagnosis may be made with either hemagglutination inhibition or complement fixation tests with the new antigens*

The phenomenon of antigenic variation among the viruses which cause influenza has been recognized since the earliest vaccine trials as a basic problem in development of effective control of the disease by immunization[2] Four major immunological types (A, B, C, and D) are now known, and these comprise completely distinct groups of viruses Marked antigenic differences among strains within types A and B have appeared with some regularity Observations made with viruses isolated during the last 24 years indicate that these variations may be summarized as four serologically intersecting sets of type A strains These groups have been referred to as sets or families[3] and previously included the Swine, PR8, and FM1 sets of strains Each has been successively responsible for type A influenza for a period of years Serologic evidence has been obtained that strains of the antigenic nature of the Swine set probably caused pandemic influenza in 1917-1919, remained in circulation 5 to 10 years, and then vanished[4] The first isolates from humans were distantly related to the Swine set, and clearly constitute another group, that is, the PR8 set Type A influenza strains prevalent during the years 1933-1943 were members of this later group, as shown by observations of protective effect of vaccination, antigenic analysis of strains, and seroepidemiologic considerations of strains In 1946-1947 the FMI set or A-prime viruses completely replaced the earlier groups, and the etiological agents of influenza A have been variants within the FM1 set during the last 10 years on a world-wide basis The emergence of a new group of strains has been expected[5] Available evidence strongly indicates that the fourth set of strains has evolved this year and can be expected to replace the FM1 set or A-prime isolates These new viruses were first isolated in May, 1957, from epidemics of influenza in Singapore and are now termed Far East (FE) influenza A[6] This designation is greatly preferred over an A–double prime or similar name

Antigenic Relationships

The modifications of antigenic structure among strains in earlier sets have been followed with interest[3] Early in 1956, virus isolates from Holland, Canada, the United States, England, India, Hawaii, and elsewhere were found to be sharply different from strains circulated in previous years, although they were clearly in the FM1 set This group was called the Dutch 56 by English investigators[7] Strains isolated in Japanese epidemics in December, 1956, were antigenically similar to the Dutch 56 strains Influenza cases which occurred from January through March, 1957, in many

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From the Communicable Disease Center, Public Health Service, U S Department of Health Education, and Welfare areas of the United States, Europe, and Asia were caused by influenza A viruses closely related to the Dutch 56 strains The FE isolates are distinctly different in antigenic comparisons with all earlier type A viruses Typical results of hemagglutination-inhibition tests with serums from convalescent ferrets and immunized chickens and several strains of types A, B, C, and D influenza are presented in table 1 Although different titers will be obtained with the use of various lines of each virus and serums from other animals or from bleedings at different times after immunization, these results appear to indicate to fair degree the antigenic relationships which exist among these viruses Comparable data have been obtained with serums against several other type A isolates

The isolates have been given designations by influenza centers which indicate the antigenic type and the geographical location of the laboratory which made the isolation or where the case occurred and the year of isolation A number before the year differentiates between isolates and may identify the laboratory responsible for obtaining the virus Thus, strains with the block of numbers 300-400 have been forwarded by the Walter Reed Army Institute of Research Exceptions to this rule are A/Swine/1976/31, which is the virus isolated from pig no 1976 by Dr Shope, and the C/JJ/50, where the letters "JJ" are initials from a patient's name

With the possible exception of a slight reaction between the A/Denver/57 virus and antiserum against the FE isolate A/Japan/305/57, no antigenic similarity is evident between the FE virus and other influenza strains In contrast to these results, titers obtained with the A/Hawaii/56 and A/Denver/57 isolates indicate a very close antigenic relationship These viruses also cross-react to a high degree with 'Dutch 56' viruses and all influenza virus isolations made during the period from January to April, 1957, from many areas of the world The dotted line is to draw attention to the reactions noted between these isolates and the FM1/47 and Mal/54 These results indicate that all four are in a set but that the 1956-1957 isolates may be sufficiently different to alter the formula for a polyvalent influenza vaccine Antigenic intersection between later sets and those of which Swine/31 and PR8/34 are prototype strains can be seen by the low antibody titers No reactions were found between the strains from different types (A, B, C, and D)

The FE viruses are also set apart by results obtained with virus neutralization tests using virus infection in embryonate eggs as the index of serum-virus interaction

At least 20 isolates have been typed as members of the new set, including agents from epidemics in Asia and Europe and sporadic cases in the United States and elsewhere[6b] Although slight differences are noted in cross tests among these viruses, all are closely related antigenically and comprise a new group, or the fourth set of type A influenza viruses

The relationship to the older type A strains is evident from results of complement-fixation tests Both allantoic fluids and membrane extracts from embryonate eggs infected with the new agent have been demonstrated to contain high concentrations of influenza A antigens Data presented in table 2 confirm other observations that the A/Japan/305/57 (FE) strain is a type A influenza virus and that it may be more closely related to A/Denver/1/57 than to A/PR8/34 These results were obtained using a standard overnight fixation method and demonstrate that viral antigens in allantoic fluids gave a more specific reaction than did the membrane extracts which contained a high concentration of "soluble" antigen The membrane extracts had been absorbed with erythrocytes to remove viral particles

TABLE 1 —*Results of Cross Hemagglutination-Inhibition Tests*

	Antiserum									
Isolates	Swine/31	PR8/34	FM1/47	Mal/54	Haw/56	Den/57	(FE) Japan /305*	GL/54	JJ/50	Send/52
A/Swine/31	1 600	0†	50	0	0	0	0	0	0	0
A/PR8/34	0	1 600	50	0	100	400	0	0	0	0
A/FM1/47	50	0	3,200	200	50	50	0	0	0	0
A/Malaya/54	0	0	1 600	1 600	100	400	0	0	0	0
A/Hawaii/56	0	0	50	0	3 200	6,400	0	0	0	0
A/Denver/57	0	0	0	0	1 600	12 800	50‡	0	0	0
A/Japan/305/57	0	0	0	0	0	0	800	0	0	0
B/GL/54	0	0	0	0	0	0	0	400	0	0
C/JJ/50	0	0	0	0	0	0	0	0	800	0
D/Sendai/52	0	0	0	0	0	0	0	0	0	1 600

* Chicken serum against prototype strain of Far East (FE) A other serums are from ferrets after infections with the designated isolates

† 0=no inhibition of 4 hemagglutinating units by 1 50 dilution (final)

‡ Inhibition noted with 2 pools of chicken serums but not with 2 other pools

Growth in Eggs, Tissue Culture, Mice and Ferrets

Strains of the FE set have a host range and in vitro behavior similar to other type A influenza viruses Isolations from throat washings are readily accomplished by standard methods using the chick embryo amniotic sac[8] Allantoic fluids harvested from infected embryonate eggs contain concentrations of 10^8 to 10^9 egg infectious doses per milliliter No notable differences in titers were obtained when eggs were incubated at 35 C rather than 37 C Concentrations of virus as measured by hemagglutination of guinea pig, human, or chicken erythrocytes have been comparatively low (100 to 200), even when the eggs were injected with highly diluted seed or treated cortisone An exception to this observation has been with the recently acquired isolate, A/Formosa/313/57 Eleven-day embryonate eggs inoculated with this strain by the allantoic route and incubated for 48 hours at 37 C have repeatedly yielded pools of allantoic fluids with hemagglutinin titers of 1 800

Fluids from eggs inoculated with strains of the FE set contain virus particles in the filamentous and spherical forms [9] Similar pleomorphism has been demonstrated with many type A strains by electron photomicrography or with the light microscope using darkfield illumination or staining with impregnation procedures [illegible] These observations may account for the usually low hemagglutinin titers obtained and antigenic behavior noted with several of the FE isolates Investigations concerning the significance of these forms in fluids from infected eggs have demonstrated that the long fibers will agglutinate cells and have the antigenic specificity of spherical virus particles, however, they are believed to be infective only at one end [10] Future work with these viruses is indicated to clarify the nature of the various forms

TABLE 2 —*Antibody Titers from Complement Fixation Tests with Serums from Recently Infected Humans* or Ferrets*

Antigens	Human Serums Acute	Human Serums Convalescent	Ferret Serums Acute	Ferret Serums Convalescent
A/Japan/305/57				
Allantoic fluid	< 8	64	< 8	64
Membrane extract	< 8	128	< 8	64
A/Denver/1/57				
Allantoic fluid	< 8	64	< 8	128
Membrane extract	< 8	64	< 8	64
A/PR8/34				
Allantoic fluid	< 8	< 8	< 8	< 8
Membrane extract	< 8	64	< 8	32
B/CL/1739/54				
Allantoic fluid	< 8	< 8	< 8	< 8
Membrane extract	< 8	< 8	< 8	< 8

* Infections with strains similar to A/Denver/1/57

It was of interest to find that the FE isolate, A/Japan/305/57, would agglutinate sheep erythrocytes After observations in complement-fixation tests with the virus in allantoic fluids as the antigen, comparative hemagglutination titrations were carried out with 1% suspensions of sheep erythrocytes and 0 5% chicken red blood cell suspensions at 4 C and room temperature At either temperature this virus in allantoic fluids diluted in the usual phosphate-buffered saline solution caused the formation of the typical patterns with both sheep and chicken cells in titers of 1 100 In contrast, the several other type A strains isolated in previous years did not agglutinate the sheep cells In this respect the FE isolate behaves more like type B strain Lee/40, which also agglutinated sheep cells at both temperatures The significance of these observations is not yet clear Although it has been suggested that the strength of the virus-cell bond varies with strains of virus and the species of animals from which the erythrocytes are obtained,[11] further work must be carried out to permit additional speculation

Very limited information has been obtained concerning the growth of FE viruses in tissue culture, mice, and ferrets Virus in allantoic fluids from infected eggs will multiply in monolayer monkey kidney cultures as seen by an increase in hemagglutinin infectivity and slight cytopathogenic changes The concentration of virus produced is similar to that found with many egg-adapted type A strains with hemagglutinin titers in the 10-100 range [12]

The new viruses also grow in mice and ferrets after intranasal inoculations Characteristic lung consolidation was found in mice 3 to 10 days after they were given allantoic fluids containing 10^6 egg infectious doses of any of several FE isolates The viruses have been maintained by several lung-to-mice transfers, however, after five passages lesions were no longer noted, indicating that many of the pathological changes in the first mice were probably due to toxicity, as seen with other influenza viruses [13] Studies concerning the virulence of these viruses are being continued

Serologic Behavior in Laboratory Tests

It was early recognized that many of the FE influenza isolates were very sensitive to nonspecific inhibitors in heated serums which are not antibody and therefore interfere with interpretation of results from hemagglutination-inhibition (HI) tests Furthermore, the treatment of serums with trypsin, periodate, or Vibrio cholerae extracts [8] did not remove these troublesome inhibitors Two of the isolates, A/Japan/305/57 and A/Formosa/313/57, were not sensitive, however, and a majority of the tests have been carried out with these strains Lines of these viruses established by transfers in ferrets and mice and subsequently in eggs appear more capable of combining with antibody than those which have been carried only in eggs but have a greatly increased sensitivity to nonspecific inhibitors [14]

These considerations make it difficult to draw conclusions from data derived by HI or virus neutralization tests Future studies utilizing complement-fixation, serum antibody absorption, or antibody-virus precipitation methods may demonstrate a closer antigenic relationship between the FE viruses and earlier type A strains

TABLE 3 —*Comparative Hemagglutinin and Complement-Fixation Antigen Titers of Allantoic Fluids*

Virus Strain	Hemagglutinin Titer*	Complement Fixation Antigen Titer†
A/Japan/305/57	100	128
A/FM1/47	800	16
A/Malaya/54	800	32
A/Ned/56	200	16
A/PR8/34	1 200	< 8

* Reciprocal of highest dilution giving positive pattern test with 0 5% suspension of chicken erythrocytes

† Conventional tests using overnight incubation at 4 C and pooled serum from persons convalescent from A infections in March 1957

It has been reported [15] that serum obtained from people in Holland in the age range 70 84 contained antibody against the FE strain Rises in these antibody titers were found in this group after injection of type A vaccines prepared with strains isolated since 1933 This observation is of particular interest because it suggests that viruses prevalent during the pandemic of 1889 contained antigens shared with these most recent A strains, which would be similar to interrelationships demonstrated with the Swine, PR8, and FM1 sets of strains[16] Although serums taken from people of similar age groups in Alabama,[12] Washington, D C,[17] Michigan,[18] and Missouri[19] did not contain inhibiting antibody measurable with FE viruses, additional tests with comparable postvaccination serums and other lines of FE viruses are indicated Studies of this nature are being continued

Antigenic Potency

The evidence is firm that the production of antibody stimulated by injections of preparations containing killed influenza viruses is correlated with immunization against the disease[2] Vaccine specifications have been on the basis of viral concentrations determined by chicken cell agglutination (CCA) activity Early results of studies with the prototype strain A/Japan/305/57 by six vaccine manufacturers in the United States indicated that products containing more than 200 CCA units per milliliter would be difficult to obtain[20] Results of studies by the commission on influenza, Armed Forces Epidemiological Board,[21] with previously isolated A viruses have made it clear that an antigenic mass represented by 750 to 1,000 CCA units was most effective The lower specification of 200 units for military and civilian uses[22] is governed by the practical consideration of the yields obtained in experimental lots by vaccine manufacturers with the A/Japan/305/57 virus

There is reason to believe at this time that considerably more antigen is contained in preparations of this strain than the CCA titer indicates Chickens immunized with allantoic fluids which contain about 50 CCA units have responded by producing antibody measured by HI tests in titers as high as 1 800, which is in the range obtained with greater concentrations of immunizing fluids containing previously isolated A viruses[23] When allantoic fluids were titrated by complement-fixation methods a much higher concentration of antigen was measured than with similar allantoic fluids from eggs infected with other type A viruses Representative results of these tests are presented in table 3 It will be noted that, although the hemagglutinin titers were lower with A/Japan/305/57, the highest complement-fixation antigen concentrations were found with this strain Failure of the PR8 strain antigen to fix complement with antibody in these serums indicates the degree of specificity which may be encountered when serums from young age groups are used This is in keeping with previously recorded observations concerning age-specific antibody[24] In view of these results and the other considerations additional studies are under way to assess the value of complement-fixation titers as a means of indicating antigen concentration and potency of influenza vaccines[25]

Several studies have been initiated to determine the minimal CCA dose of the A/Japan/305/57 strain necessary to elicit antibody in groups of humans At least three methods of virus concentration and vaccine manufacture are in use, and representative preparations have been made available by several pharmaceutical companies for these tests in adult civilian and military populations Early results[26] have indicated that antibody production can be stimulated with this virus

Serologic Diagnosis

The earliest tests[27] demonstrated that comparatively low antibody titers were found in serum from patients convalescent from infection with the FE viruses This may be due to the behavior of these strains in HI tests or, more likely, to the nature of antibody response when a new antigen is encountered[21] It is evident that serologic diagnosis can be made with both HI and complement-fixation test methods[28] However, several cases not detectable when the Japan/305 virus was used in HI tests were found by complement-fixation tests with that virus in allantoic fluid or membrane extracts containing soluble antigen[12] Previous experience has indicated that serologic diagnosis is more often made when both HI and complement-fixation tests are carried out rather than either one[21]

Availability of Materials and Information

Diagnostic serums, antigens, and seed viruses have been sent to approximately 100 laboratories in the Americas which collaborate with the World Health Organization Influenza Program Other interested laboratories are urged to join the network and offer their assistance Any competent laboratory will be supplied materials and information concerning the laboratory aspects of influenza by the center upon request

Dr C C Dauer, in the National Office of Vital Statistics, Washington, conducts the Influenza Information Office for the WHO Influenza Program in the United States, and Dr A M-M Payne, in the WHO offices at Geneva, coordinates the world-wide program Dr Dauer publishes information in the weekly Morbidity and Mortality Reports and should be contacted concerning pertinent clinical and epidemiologic observations

Summary

The influenza now occurring in sporadic cases or epidemics in many areas of the world is caused by viruses of type A Results of antigenic analyses of several of these isolates have made it clear that vaccines should be modified to contain a representative of this new set of variants Laboratory diagnosis can be established by serologic identification of agents isolated from throat washings and by complement fixation and hemagglutination-inhibition tests with paired serums from suspect cases Diagnostic reagents including antigens and typing antiserums have been made available to state health officials and to many laboratories which are cooperating with the Influenza Program of the World Health Organization Vaccine potency tests are in progress, and preliminary results are encouraging

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INFLUENZA

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• *The situation with respect to Asian influenza is unique in that the causative virus has been isolated before the disease itself appeared in the United States Intensive study of past experience makes it seem probable that this disease will continue to spread during the rest of the summer but will not be highly epidemic in the United States until fall or winter, when outbreaks are anticipated Although it is impossible to make any firm predictions at this time, it is unlikely that the virulence of the infection, as manifested in case mortality rates, will be higher in the later outbreaks The present epidemic, with its rapidity of spread and high attack rate, is sufficiently unusual to press for immunization against the new virus As a properly constituted vaccine is the only preventive, its use should be encouraged as soon as it becomes available*

During recent weeks the eyes of the medical profession of the United States have been on the influenza epidemic which swept through the Far East Thus far only sporadic outbreaks have occurred in this country, and have not in themselves offered a serious problem

The important consideration, however, is what will happen during the fall and winter months The distinct possibility of an influenza epidemic in the United States this coming winter cannot be ignored Experts in the field say there is little question that we will have an epidemic in this country sometime during those months In view of this, it seems appropriate to review the current situation, with some dwelling on the lessons learned from the past[1] so that we can be better prepared to meet any eventuality

Historical Aspects

Outbreaks of influenza have attracted considerable attention from many outstanding physicians during centuries in which severe disease and high mortality were commonplace The disease has been known through the ages under a variety of names—the jolly rant, gallants disease, the fashionable illness, and more recently as the flu, or the virus—none of which carry a particularly ominous note

Certain characteristics of the illness distinguished such occurrences from other contemporary disturbances of the day, among which were the sudden appearance and the widespread involvement of all ages and kinds of people

The great similarity in many of the clinical descriptions is also evident Of the extensive epidemic of 1557, T Short relates, as quoted by Francis, 'it began with a roughness of the jaws, small cough, then a strong fever, with a pain of the head, back and legs, some felt as though they were corded over the breast and had a weight at the stomach, all of which continued to the third day at the farthest, then the fever went off with a sweat, or bleeding at the nose In some few, it turned to a pleurisy, or fatal peripneumony "[1] With limited variations this description is met again and again and remains virtually unchanged to the present day

Another prominent characteristic of this illness which has been recorded since the time of the first real pandemic in 1580 is low mortality[2] The single exception to this was in the pandemic of 1918, which will be discussed in further detail

The first epidemic with origin in America was described in 1758 Again the high morbidity and low mortality feature was in evidence Asia and Europe were hit with a pandemic in 1782 Many observers noted the tremendous incidence of the illness, with its peak in May in England, and, while the mortality was

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Surgeon General, U S Public Health Service, Department of Health, Education, and Welfare low, frequent complications were described. Herpes, erysipelas, sore throat, and pulmonary disease were mentioned repeatedly. Also pointed out at this time was a striking difference in attack rates at varying ages. Young children and older people were less often affected than the middle-aged group. More women than men were said to escape.

In the 19th and 20th centuries, recurrences were highlighted by the pandemics of 1890 and 1918. The pandemic of 1918-1919, which swept over nearly every continent and island of the globe, has been described as one of the great human catastrophes of all time.

Our interest in the happenings preceding the 1918-1919 holocaust are reawakened in view of the unusual features accompanying the current epidemic of Asian influenza. In January, 1916, influenza was reported to be epidemic in 22 states but was described as a mild type of illness.

As early as December, 1917, influenza was prevalent in Camp Kearny, California, and in other Army camps in January, 1918, but the disease was said to be mild. In the spring, localized outbreaks occurred in the civilian population of the United States and mortality from pneumonia rose sharply in certain cities. Mild epidemics of influenza were reported in various localities in Western Europe in April and May of 1918, and in June and July more extensive outbreaks occurred in Great Britain and in Europe, China, India, the Philippine Islands, and Brazil. In these countries, mortality rose moderately.

During August, 1918, epidemics of influenza were reported in Greece, Sweden, Switzerland, Spain, and the West Indies, and late in the month it appeared almost simultaneously in Camp Shelby, Mississippi, and Boston. In September, it appeared in rapid succession in other cities and Army camps along the eastern seaboard and the Gulf of Mexico and spread rapidly westward across the country. By October, the epidemic had involved the entire United States except for a few isolated areas. The interval between the peaks of the epidemic in Boston and in San Francisco was about four weeks, and the peaks in the number of deaths usually were reached within about one month after the beginning of the epidemic in a community or area. In some areas there was a recrudescence of the epidemic in January and February, 1919, which was most marked in the cities where the autumn epidemic was less severe. Thus the influenza epidemic of 1918-1919 was characterized by a relatively mild phase in the spring of 1918, an explosive outbreak with high mortality in the fall, and a third phase or recrudescence early in 1919.

One distinct characteristic of the 1918-1920 pandemic was the extraordinarily high mortality in young adults. The greatest amount of mortality in epidemics prior to and subsequent to 1918-1920 was found in children under 1 year of age and in persons aged 65 and over. About 90% of the men in military service in World War I were young adults between 20 and 35 years of age. Consequently, the armed forces were seriously affected, as were the same age groups in the civilian population. In the Army over a million men were hospitalized for influenza and pneumonia, and of these there were more than 44,000 deaths. There were some 5,000 deaths among Navy personnel.

It has been estimated that there were 20 million cases of influenza and pneumonia in the United States in 1918-1919, with approximately 850,000 deaths. The latter figure includes deaths reported in the military.

The excess in the death rates over the "expected" in 1918-1919 was 598, 92% of which was caused by influenza and pneumonia. In recent years mortality from all causes has not shown a marked rise during influenza epidemics, and deaths attributed to influenza and pneumonia have been increasingly fewer in number. The principal impact of influenza epidemics since 1940 has been an excess of deaths from causes other than influenza and pneumonia, such as heart disease and other chronic diseases. As expected these deaths occur in the older age groups.

Little is known of the true prevalence or incidence of influenza in recent years because reporting of individual cases is unreliable. The disease cannot be clinically differentiated from other types of upper respiratory infections which may also be occurring during an epidemic of influenza, and it is not practicable to obtain laboratory diagnosis of all suspect cases. Absenteeism rates in schools, industries, or other working groups may rise, but such indexes are more useful in alerting health officers to the possibility of an influenza epidemic than in providing figures on incidence.

The virus of human influenza was isolated by Smith, Andrewes, and Laidlaw in 1933 and 1934 after intranasal instillation of throat washings in ferrets. Since that time several strains and types of influenza virus have been isolated, and from materials from patients in 1932 and later years the predominant type of virus has been determined.

Obviously studies prior to 1933 were largely descriptive of the nature of the outbreaks, including explosiveness, extent of the epidemic in terms of death in excess of normal seasonal expectancy, cases reported to health officers or estimated from household surveys immediately following the epidemic, time covered by the outbreak, regions or states where the epidemic was first noted, and the time and direction of its spread.

Since 1948, the Influenza Study Program, which is sponsored by the World Health Organization, has maintained a system of reporting specific diagnoses of influenza in the United States, Canada, South America, and Europe. Information concerning the specific diagnosis of influenza from approximately 40 collaborating laboratories located in universities, hospitals, public health services, and military installations is sent to the Influenza Information Center in the National Office of Vital Statistics. This information in turn has been published in weekly reports and sent to interested individuals in this country and abroad.

Etiological Aspects

Three immunologically distinct types of influenza virus have been identified (A, B, and C) and within type A are some four serologically intersecting groups of type A strains These groups have also been referred to as sets or families Each has been successively responsible for type A influenza for a period of years Serologic evidence has been obtained that strains of the antigenic nature of the swine set may have caused pandemic influenza in 1917-1919, remained in circulation 5 to 10 years, and then vanished except in swine Such viral isolations have made it possible to recognize the cyclic nature of certain strains of influenza virus as well as to chart the course of an epidemic

In the United States during the period 1933-1943 combined clinical, epidemiologic, and microbiologic studies have revealed six definite epidemics of influenza A In 1947 A-prime viruses completely replaced the earlier groups and the etiological agents of influenza A have been variants within the A-prime set during the last 10 years on a world-wide basis In May of this year a new strain of A-prime virus now termed the Asian influenza A–virus was isolated and has been found to be responsible for the current epidemic

Influenza B virus has been responsible for a number of epidemics, the first of which occurred in 1936, which recur at longer cycles than influenza A In both 1936 and 1940 influenza B occurred early in the year and influenza A in the late months Influenza C is described as a virus in search of a disease, despite serologic studies demonstrating it to be a widespread infection

History has taught us that the same virus can be responsible for apparently sporadic, limited epidemic, or pandemic occurrences of influenza and that they may, in reality, represent stages in the development by the virus of epidemic properties during its adaptation to the human population It is pointed out by the Commission on Influenza that, while the clinical and epidemiologic characteristics of epidemic prevalences may be quite similar, the problem of waves and recurrences is a complex one, involving viruses of different immunologic character It seems that similar viruses have been responsible for the otherwise characteristic but unidentified experiences both before and after 1918 Interestingly enough, no particular bacterial agent has been a consistent, or even frequent, accompaniment of these viral outbreaks The conclusion is, then, that influenza virus was the decisive factor of 1918, producing a severe primary damage to the respiratory epithelium and creating a medium in which various bacterial agents could become implanted and produce the multiform pictures which were actually observed

Present Epidemic

The current epidemic of influenza was first reported in Hong Kong and Singapore during the latter half of April, 1957 Then, in rapid succession, epidemics occurred in Taiwan, the Philippines, the Malayan States, Japan, India, and other areas

Army medical teams investigating the early epidemics noted that the isolated virus appeared unusual in laboratory tests and sent the virus to the United States for antigenic analyses These analyses demonstrated that the virus is type A, but is antigenically different in the hemoagglutination inhibition test from any previously known type A strains Animal antiserums prepared against type A strains did not inhibit or neutralize the new variant, and no protective antibody could be demonstrated in serums from human beings repeatedly vaccinated with previously prevalent type A virus Information to date suggests that little protection against the new virus is gained by previous vaccination with existing influenza vaccine

Laboratory confirmation of sporadic outbreaks of Asian influenza in both military and civilian populations has been received from several sections of the United States Beginning June 2, a series of influenza outbreaks were reported among ships which had been berthed in Narragansett Bay, Newport, R I The means of introduction of the virus to this population could not be ascertained, and spread of the epidemic was erratic Subsequently infections with Far East strain influenza virus have been reported in San Diego, Monterey, Davis, and San Francisco, Calif , Cleveland, Lexington, Ky , Valley Forge, Pa , Salt Lake City, and Grinnell, Iowa

An interesting example of how the virus has spread in the United States is illustrated in the appearance of illness in California early in June, apparently introduced from returning visitors from the Far East From California the illness spread inland initially to Iowa, Montana, and Utah Further seeding of the virus was accomplished in July by travelers originating in Iowa and California The highest attack rates (70%) have occurred among recruits in the military services The other large outbreaks reported in the United States have been predominantly in groups of young people living, or brought together, in environments that favor the spread of infection To date there has been little variation in severity of the illness and but two deaths have been reported in the United States resulting from complications of influenza

Clinical and Public Health Aspects

The experience in Asia and in the United States since the new type of virus was introduced provides no basis for predicting an increase in severity of infection in the coming fall and winter or during the next year or two The present concern arises largely from the possibility that a more virulent variant of the Asian type may emerge The severity of the 1918 influenza epidemic is believed to have been due to some such mutation which exposed the population to a virus or viruses with antigenic properties radically different from those strains to which they had been previously exposed

Influenza is one of several acute infectious diseases involving the upper respiratory tract that may occur in epidemic form Such infections as adenovirus (APC-ARD), exudative pharyngitis, the common cold, and others cannot be differentiated from influenza without appropriate confirmatory laboratory tests An outbreak of influenza may occur simultaneously with one of the other respiratory infections However, influenza usually spreads more widely and more rapidly and its presence may be suspected when an epidemic shows this characteristic

Clinically influenza is usually characterized by abrupt onset, prostration, temperature as high as 104 F (40 C), headache, myalgia, cough, and sore throat X-ray examinations of the chest usually show no abnormal findings Leukopenia is common in uncomplicated cases The febrile period usually lasts three to five days, following which the patient may complain of extreme weakness for several more days

In laboratory diagnosis of individual cases, the virus may be isolated from secretions of the nose and throat taken early in the course of the illness The procedure consists of inoculating chicken eggs which have been incubated for about 10 days and recovering the virus in the fluids of the embryonic sac

Paired specimens of blood, one taken in the acute phase and the other 10 days to two weeks later, may be used for serologic tests A fourfold or greater rise in antibody titer is regarded as an indication of influenza infection Since neither of these laboratory procedures can be completed while the patient is still acutely ill, they are of little value to the physician in prescribing treatment Such tests are necessary, however, to confirm the presence or absence of influenza in a community

Even when considered mild in terms of fatality, influenza epidemics cannot be regarded as innocuous Illnesses usually are prostrating for two or more days and are often followed by a period of lassitude and weakness In an epidemic, medical care facilities may be temporarily overtaxed, attendance in school interrupted, and the entire economy disrupted by absenteeism in all types of industries, some of which are in critical areas

Immunological Aspects

The isolation of specific types and strains of influenza virus has explained substantially what was formerly believed to be the brief immunity conferred by an attack and has also created critical problems in the development and production of effective immunizing agents Type A was first isolated in 1933 and, in 1940, type B was discovered and found to have no serologic relationship to type A Neither virus stimulates the production of antibodies against the other Thus it became clear why some individuals had second attacks of influenza within a year or two The later identification of variants of type A further clarified the question of repeated attacks, since some of these variants had quite different antigenic components Serologic tests conducted in recent years indicate, however, that an attack of influenza confers a relatively long-lasting immunity to the specific virus involved, as well as to homologous or closely related strains The introduction of new variants increases the possibility of repeated attacks

Vaccines of high potency will stimulate the production of antibodies against strains of influenza virus that have been used in their manufacture, as well as against closely related strains Even when antibodies cannot be detected by serologic tests of vaccinated persons there is reason to believe that such vaccines afford some protection against natural infections When a variant appears whose antigenic structure is widely different from that of previously isolated viruses, a vaccine which has been satisfactory hitherto may be relatively ineffective against the new strain This happened in 1947 when the A-prime influenza virus was identified The same problem confronts manufacturers of vaccine today with the introduction of the new Asian virus If a variant can be discovered and incorporated into vaccine shortly after it has emerged, the vaccine can often be used effectively in reducing the number and severity of illnesses caused by the new virus

Influenza vaccines have been used most extensively in special population groups such as military personnel, schools, and certain employee groups Studies in the military reveal that a properly constituted vaccine is 70% effective under epidemic or endemic conditions and that reactions to the vaccine are quite rare Individuals known to be sensitive to egg are not given the vaccine, since virus is grown in embryonated eggs

The manufacturers of vaccines have been able to produce a satisfactory monovalent vaccine containing the Asian strain They are currently working to produce this vaccine on a large-scale basis

Present Considerations

Thanks to alertness of epidemiologic and laboratory workers in the military, an isolation of the causative virus has been made prior to the appearance of influenza in the United States The uniqueness of this situation is appreciated when we realize that for the first time in history we are in the fortunate position of being ahead of an impending epidemic of influenza

On the basis of past experience it seems probable that influenza will continue to spread for the remainder of the summer months but will not be highly epidemic in the United States until fall or winter, when outbreaks may be anticipated Although the disease will probably be mild, there is always the outside possibility of a repeat of the 1918 epidemic There is a further possibility that the virulence of the infection as reflected in case-mortality rates will increase Even though these are still only possibilities, any preparations which need to be made to meet these eventualities must be accomplished now After a pandemic starts it will be too late

The world-wide influenza study program under the auspices of WHO, which for the most part is mainly with the Public Health Service in the United States, has been functioning during the current alert and is being strengthened by a greater number of laboratories and observers both in this country and abroad

At the invitation of WHO, a plan for investigation of influenza outbreaks in foreign countries has been developed by the Influenza Commission of the Armed Forces Epidemiologic Board This operation will utilize personnel on the commission, certain investigators from universities, and members of the uniformed services In this way more detailed field information can be obtained about these epidemics than is available from the usual sources In particular the teams will be interested in determining (*a*) the properties of the virus, (*b*) complete clinical descriptions, (*c*) whether a bacterial component is associated with the illness, and (*d*) epidemiologic aspects

The American Medical Association has already announced a program designed to offset the severe strain placed on medical personnel when so many people suddenly become ill

Finally, in recent years the nature of influenza in the United States has not warranted the use of influenza vaccine except on a group basis to minimize absenteeism or in so-called priority groups However, the present influenza epidemic, with its rapidity of spread and high attack rate, is sufficiently unusual to press for immunization against the new strain of influenza virus As a properly constituted vaccine is the only preventive for this disease, the Public Health Service with the Association of State and Territorial Health Officers and the American Medical Association plans to promote the use of the vaccine as soon as it becomes available To accomplish this we plan to embark upon an educational and promotional campaign to encourage all persons who want it to seek influenza vaccine on a voluntary basis Any such campaign must be conducted in an orderly fashion to avoid confusion and hysteria in the public and will call for the combined efforts of all of us

Summary

Influenza has been known for centuries under a variety of names, but, except for the pandemic of 1918, the illness was regarded lightly For the past 25 years it has been possible to incriminate certain strains of type A virus and type B virus as causative agents of cyclic outbreaks of influenza

The current epidemic in the Far East and the sporadic outbreaks in the United States and elsewhere are caused by a new strain of type A virus popularly known as the Asian strain There is a distinct probability that the current influenza epidemic will increase and develop into pandemic porportions by late fall or winter Also there lurks the possibility of an increase in virulence of the infection as reflected in case-mortality rates A properly constituted vaccine containing the new strain of type A virus represents the only preventive tool at our command

Influenza vaccines have been proved effective and safe in controlled studies conducted by the military The Public Health Service, in cooperation with the State and Territorial Health Officers and the American Medical Association, will stimulate and promote a nationwide voluntary program of vaccination against the prevalent strain of influenza

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CLINICAL NOTES

ON PERIPHERAL THROMBOPHLEBITIS

ITS OCCURRENCE AS A PRESENTING SYMPTOM IN MALIGNANT DISEASE OF PANCREAS, BILIARY TRACT, OR DUODENUM

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and
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Trousseau,[1] in 1856, noted that thrombosis of peripheral veins may be the first clinical indication of the presence of a malignant tumor in some part of the body This observation has had such recent confirmation as the study of Woolling and Shick [2] They reported 15 cases of carcinoma that had been unrecognized until after the patients sought medical aid because of symptoms referable to thrombophlebitis The association of venous thrombosis and carcinoma of the pancreas was carefully investigated in autopsy material by Sproul,[3] who found thrombosis of one or more veins in 14 of 47 patients with carcinoma of the pancreas and in 9 of the 16 patients with carcinoma restricted to the body or tail—a very high incidence

Generations of medical students have been taught, on the basis of these and similar studies, that peripheral thrombophlebitis as a presenting complaint is suggestive of malignant disease in organs of the upper abdomen, particularly the pancreas We, on the other hand, have been impressed with the infrequent clinical association of the two diseases (as opposed to findings at autopsy) To test our clinical impression, we reviewed the case histories in a personal series (S O H) of 100 consecutive patients who had carcinoma The site was the head of the pancreas in 38 cases, the body and tail of the pancreas in 21 cases, the ampulla of Vater in 13, the common bile duct in 13, the gallbladder in 9, and the duodenum in 6

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In the 100 case histories, we found only one case of peripheral thrombophlebitis, it was the presenting symptom in a patient who had carcinoma of the head of the pancreas One case of thrombosis of the hepatic veins in association with carcinoma of the tail of the pancreas was found at autopsy The only other case suggesting previous venous difficulty was that of a patient who had carcinoma of the body of the pancreas and who had had stasis dermatitis of the legs (present for years) recorded as an incidental finding

After determining this low incidence of thrombophlebitis, we reviewed 46 cases in which the primary diagnosis was peripheral thrombophlebitis They were random case records obtained from the record room, not a consecutive series, and, as such, are subject to the limitations of all nonconsecutive series One case record from the personal series already mentioned was included, the patient had carcinoma of the head of the pancreas Carcinoma or other malignant disease was disclosed in 7 (15%) of the 46 cases In these seven, the site of the malignancy was the prostate in two cases, the lung in one, the liver (primary) in one, and the pancreas (our case) in one There was one case of lymphosarcomatosis and one of chronic lymphatic leukemia

In our consecutive series of 100 cases of biliary, pancreatic, and duodenal carcinoma, the low incidence (2%) of thrombophlebitis possibly could be related in some obscure fashion to the type of patient who receives treatment at a private clinic Or it may represent a true index of the frequency with which the conditions are associated, as seen by the clinician On the other hand, an incidence of 15% (7 of 46 patients) of malignant disease in some part of the body in patients whose presenting symptom is thrombophlebitis reaffirms the original observation of Trousseau

Comment

Patients with carcinoma of the pancreas, gallbladder, bile duct, or duodenum, as seen by the clinician, do not have a high incidence of peripheral thrombophlebitis, but patients with spontaneous thrombophlebitis do have a significant incidence of malignant disease

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HIGH ACID PHOSPHATASE LEVEL INDICATING GAUCHER'S DISEASE IN PATIENT WITH PROSTATISM

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While no laboratory test is pathognomonic of a single disease, the one regarded as most nearly approaching this aim is the determination of the serum acid phosphatase level Since the work of Gutman and Gutman,[1] a pronounced elevation of the serum acid phosphatase level has been considered indicative of metastasizing carcinoma of the prostate One of us and co-workers[2] have pointed out that the serum acid phosphatase level is elevated in Gaucher's disease (lipid histiocytosis of kerasin type) and described eight patients with values ranging from 4 0 to 11 7 units per 100 cc, of whom seven had values of 7 units or over Elevation in one case of Niemann-Pick disease (lipid histiocytosis of phosphatide type) has been described in the Scandinavian literature[3]

The following case of a 68-year-old man seen by one of us (M S) for classic symptoms of prostatism is reported The finding of a serum acid phosphatase value of 10 3 Gutman units per 100 cc led to the presumptive diagnosis of carcinoma of the prostate with metastases When the clinical findings, the results of punch biopsy, and the improvement of the symptoms made the diagnosis untenable, the recent finding of one of us (L R T), Suna, and Carr was recalled[2] A sternal marrow aspiration was done, and the diagnosis of asymptomatic Gaucher's disease, which was hitherto unsuspected, was made

Report of a Case

A 68-year-old man was admitted to the urologic service of Dr G D Oppenheimer at the Mount Sinai Hospital, New York, with a chief complaint of dysuria and nocturia of two months duration He had always been well until one year previously, when he had a brief episode of dysuria Two months before admission, he began to experience dysuria and nocturia that reached the frequency of three times nightly One of us (M S) saw the patient in his office and had the patient hospitalized for study because acid phosphatase determinations gave successively levels of 7 0 and 10 3 Gutman units

Physical examination showed the patient to be a vigorous, healthy-appearing man of 68 years of age, who was only slightly disturbed by his physical complaints Except for incipient cataract formation and mild senile emphysema, no abnormalities were found on general physical examination His blood pressure level was 130/60 mm Hg, his chest was clear on fluoroscopy, and the heart sounds were normal No masses were felt in the abdomen The prostate was enlarged to about twice its normal size, but it felt smooth, no nodules being palpated

The laboratory findings included urine with a specific gravity of 1 016 and no albumin or sugar and two to seven red blood cells per high-power field The hemoglobin level was found to be 12 6 Gm per 100 cc, and the white blood cell count was 5 400 per cubic millimeter, with 76% polymorphonuclear cells,

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From the departments of medicine and urology, the Mount Sinai Hospital

16% lymphocytes 1% eosinophils, 1% basophils, and 4% monocytes The sedimentation rate was 31 mm per hour (Westergren) Sulfobromophthalein (Bromsulphalein) determination showed 2% retention at the end of 15 minutes the urea nitrogen level was 11 mg per 100 cc, and the sugar level in the fasting state was 107 mg per 100 cc The serum total protein level was 8 Gm per 100 cc with 4 6 Gm albumin and 3 4 Gm globulin The result of the cephalin flocculation test was 2+ The cholesterol ester partition was 201/162 mg per 100 cc Two additional determinations of serum acid phosphatase with the phenyl phosphate substrate showed values of 7 4 and 7 4 units per 100 cc Alkaline phosphatase values were 7 2 and 8 1 King-Armstrong units per 100 cc, which precluded the explanation of the elevated acid phosphatase values as being due to nonspecific spillover

A cystogram showed a normal-sized bladder with the floor slightly elevated, and an intravenous pyelogram showed normal urinary tracts bilaterally X-ray examination of the skull the thoracic and lumbosacral spine pelvis ribs and the long bones of the upper and lower extremities showed no evidence of discrete cystic, or blastic lesions

On the patient s admission the majority opinion on the urologic service was that carcinoma of the prostate was the most probable diagnosis this opinion being based upon the age of the patient, the symptoms of prostatism, and the elevated serum acid phosphatase levels The prostate, however was smooth and no nodules were felt therefore a perineal biopsy was performed The tissue obtained was reported as showing fragments of prostatic tissue without significant change and no definite evidence of tumor After a postbiopsy urinary retention the patient s symptoms of prostatism abated completely At this point, while other members of the service puzzled over its significance Dr S A Averbuck and one of us (M S) independently suggested that the elevated serum acid phosphatase levels might be due to Gaucher s disease The hematological consultant did not agree with the idea but after a palpable liver and spleen were demonstrated, he agreed to do a sternal marrow aspiration The aspirate was reported as being a somewhat dilute marrow showing megakaryocytes in adequate numbers and Gaucher cells on the smear

Comment

It is probable that the diagnosis of Gaucher's disease would never have been thought of, in this vigorous, well man who had lived a long life with no significant disability and whose hepatosplenomegaly was so minimal that it was only established after the diagnosis of Gaucher's disease was considered, had it not been for the failure to explain the elevation of the serum acid phosphatase level on the basis of carcinoma of the prostate with metastasis This certainly seemed the reasonable and probable explanation when the patient was first seen, but the complete subsidence of prostatic symptoms, the negative findings on perineal biopsy, and the well-being of the patient, failed to substantiate this opinion Without the sternal marrow biopsy, the case would have remained an enigma The patient could have had a prostatectomy, which would have shown a benign prostatic adenoma, or he would have been watched In either instance, there would have been no explanation for the elevated serum acid phosphatase level It is noteworthy that an extensive x-ray survey of the bones was negative and that no evidence of liver disease was present

An earlier paper by one of us and associates[2] includes the report of the case of a 74-year-old physician, known to have had Gaucher s disease for many years, in whom a serum acid phosphatase level of 8 3 units per 100 cc remained unexplained when the findings at operation and the pathological report revealed a benign prostatic adenoma

Summary

A 68-year old man was suspected of having carcinoma of the prostate because of prostatism and an elevated serum acid phosphatase level The diagnosis, hitherto unsuspected, of Gaucher's disease (lipid histocytosis of kerasin type) was established by sternal marrow biopsy

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Pain in Shoulder, Arm, or over the Chest—Osteoarthritis is a common cause of irritation of nerve roots In 1925, Parker and Adson provided one of the earliest descriptions of encroachment by hypertrophic spurs on the spinal foramina, causing irritation of the nerve roots, with symptoms referred to the region of distribution of some of the efferent portions of the particular nerves Bony changes frequently occur in osteoarthritis of the cervical segment of the spinal column These changes are found most often in the lower cervical vertebrae from which emerge the sixth, seventh and eighth cervical nerves It is well to recall that these segments contain a portion of fibers which supply the pectoralis major and minor, the subscapularis and the deeper portion of the latissimus dorsi muscles If the foramina from which these nerves emerge are narrowed, it can readily be undersstood how a patient could have a pain over the pectoral region or the region of the shoulder and arm Occasionally, a patient will have osteoarthritis of the cervical portion of the spinal column and complain of a dull ache largely confined to the region of a shoulder and arm The patient may not complain of pain in the neck but he may have noticed that certain movements of the neck, such as hyperextension, will produce pain in the region of the shoulder, arm or chest However, when a patient complains of pain in the shoulder, in the arm or over the chest, it is well to keep in mind the fact that this pain may be due to osteoarthritis of the cervical vertebra —D J Erickson, M D, Cervical Traction and Other Physical Therapeutic Procedures for Pain About the Neck and Shoulders, *Minnesota Medicine*, June, 1956

COMMITTEE ON MEDICOLEGAL PROBLEMS

MEDICOLEGAL APPLICATIONS OF BLOOD-GROUPING TESTS

Last year the Committee on Medicolegal Problems published a tentative supplementary report discussing the medicolegal applications of blood-grouping tests (J A M A 161 233-239 [May 19] 1956) Because a portion of the report was controversial, comments were solicited from workers in the field These comments have been received and analyzed, and below is the revised and final version of the report of the Committee on Medicolegal Problems, American Medical Association, prepared by a subcommittee consisting of Alexander S Wiener, M D, Brooklyn, N Y, Ray D Owen, Ph D, Pasadena, Calif, Clyde Stormont, Ph D, Davis, Calif, and Irving B Wexler, M D, Brooklyn, N Y—ED

In 1952 a report[1] was prepared by the Committee on Medicolegal Problems of the American Medical Association describing the status at that time of the medicolegal application of blood-grouping tests for the exclusion of parentage and for the examination of stains of blood and secretions The purpose of this supplementary report is to review further developments in the field during the period 1952-1957

Blood Group Nomenclature

One of the most pressing problems at the present time is that of blood group nomenclature This pertains particularly to the important Rh-Hr types, for which two principal methods of designation are in use, namely, the original Rh-Hr nomenclature and the C-D-E symbols The submission to jurists by different experts of medicolegal reports with conflicting symbolisms cannot help but confuse them and shake their confidence in the blood tests Moreover, reports in two different symbolisms require translation from one into the other when comparisons are to be made, there is always danger of error in this process Therefore, the adoption of one uniform nomenclature for medicolegal reports is most desirable

Marked disagreement is prevalent among workers in the field, and while the Committee is prepared to make a firm and unqualified recommendation, a survey of contrary opinion has been prepared and can be found in the section 'Contrary Opinion on Nomenclature Although corresponding to the two systems of designating the Rh-Hr types there are two conflicting genetic theories, the crux of the problem is actually on a serologic level It is most important to distinguish clearly between agglutinogens and their serologic attributes, the blood factors[2] An agglutinogen may be defined as a substance present on the surface of the red blood cells that is differentiated by certain agglutination reactions with diagnostic reagents The blood factors, on the other hand, are those attributes of the agglutinogen molecule (perhaps an arrangement of polar groups, electric charges, and other configurational details on the surface of the molecule) that enable it to combine with antibodies In general, each agglutinogen is characterized by multiple blood factors The C-D-E notations for the Rh-Hr types make no allowance for the difference between a blood factor and an agglutinogen and incorporate the tacit, incorrect assumption that every agglutinogen has but a single corresponding antibody This has led to a number of paradoxes, which have been described in detail elsewhere[3] and need not be elaborated here Indeed, much of the evidence that has accumulated regarding the serology and genetics of the Rh-Hr types refutes the interpretation implicit in the C-D E notations On the other hand, the original Rh-Hr nomenclature presents the data objectively, without committing the user to a preconceived interpretation, which at times may be inconsistent with the actual observations Under these circumstances, the Committee has been obliged to adopt the original Rh Hr nomenclature as the sole nomenclature in the preparation of this report This committee, therefore, recommends that the C-D-E notations for the Rh-Hr types be discarded and that, in approved medicolegal reports, unless and until some other convention is agreed upon, the original Rh-Hr nomenclature be retained as the sole nomenclature for this blood group system (table 1)

In any blood group system, and the Rh-Hr system in particular, one must carefully distinguish among agglutinogens, blood factors, and genes To avoid confusion among these three levels, appropriate provisions must be made in the symbols Therefore, it is suggested that regular-face type be used for agglutinogens and phenotypes, boldface type for blood factors and their corresponding antibodies, and italic type for genes and genotypes This is in keeping with accepted genetic usage This recommendation is approved by this committee and has been adopted for the purpose of this report For purposes of illustration and for its practical value, the heredity of the Rh-Hr types will be briefly reviewed, using the recommended nomenclature

At the present time, four principal Rh blood factors (**Rh_0**, **rh'**, **rh"**, and **rh^w**) and three principal Hr factors (**hr'**, **hr"**, and **hr**) are recognized However, antiserums for only four of these seven factors are readily available for routine clinical and medicolegal work, namely, anti-**Rh_0**, anti-**rh'**, anti-**rh"**, and anti-**hr'** Therefore, this discussion will be confined to the results obtained using these four antiserums (Some workers also routinely carry out tests with anti-**hr"** serum) Ample evidence is now available that there are eight principal alleles determining the heredity of the Rh-Hr types, as distinguished by these four reagents Table 2 lists these alleles and their corresponding agglutinogens, as well as the blood factors that characterize each agglutinogen Table 3 gives the various reactions that may be encountered in actual tests carried out with the four Rh-Hr antiserums It will be seen that there are 12 possible phenotypes, to which there correspond 36 theoretically possible genotypes With these basic data, it is simple to determine which Rh-Hr types can occur and which cannot for any given mating

TABLE 1 —*Rh-Hr Phenotypes and Genotypes*

2 Rh Phenotypes			12 Rh Phenotypes					28 Rh Hr Phenotypes					
Designations	Approximate Frequencies in New York City Whites %	Reaction with Anti Rh₀ (or Anti rhesus)	Designation	Approximate Frequencies in New York City Whites %†	Reaction with Anti rh	Anti rh″	Anti rh^w	Designation	Approximate Frequencies in New York City Whites %‡	Reaction with Anti hr′	Anti hr″	Anti hr	55 Genotypes§
Rh negative	15	—	rh	14 4	—	—	—	rh	14 4	+	+	+	rr
			rh	0 46	+	—	—	rh rh	0 46	+	+	+	$r'r$
								rh rh	0 0036	—	+	—	$r'r'$
			rh ^{w}	0 001	+	—	+	rh ^{w}rh	0 004	+	+	+	r'^wr
								rh ^{w}rh	0 00006	—	+	—	r'^wr' or $r'^wr'^w$
			rh″	0 38	—	+	—	rh″rh	0 38	+	+	+	$r' r$
								rh rh″	0 0025	+	—	—	$r' r'$
			rh$_y$	0 01	+	+	—	rh rh	0 006	+	+	—	$r'r'$
								rh$_y$rh	0 008	+	+	+	r^yr
								rh$_y$rh	0 0001	—	+	—	r^yr'
								rh$_y$rh″	0 0001	+	—	—	r^yr'
								rh$_y$rh$_y$	0 000001	—	—	—	r^yr^y
			rh$_y$^{w}	0 00005	+	+	+	rh ^{w}rh″	0 00005	+	+	—	r'^wr'
								rh$_y$^{w} rh	0 000001	—	+	—	r'^wr^y
Rh positive	85	+	Rh₀	2 1	—	—	—	Rh₀	2 1	+	+	+	$R R^o$ or R^or
			Rh₁	50 7	+	—	—	Rh₁rh	33 4	+	+	+	R^1r R^1R^o or R^or'
								Rh₁Rh₁	17 3	—	+	—	R^1R^1 or R^1r
			Rh₁^w	3 3	+	—	+	Rh₁^{w}rh	1 6	+	+	+	$R^{1w}r$ $R^{1w}R^o$ or R^or'
								Rh₁^{w}Rh₁	1 7	—	+	—	$R^{1w}R^1$ $R^1r'^w$ $R^{1w}r'$ $R^{1w}R^{1w}$ or $R^{1w}r'^w$
			Rh	14 6	—	+	—	Rh rh	1? 2	+	+	+	R^2r R^2R^o or R^or'
								Rh Rh	2 4	+	—	—	R^2R^2 or R^2r'
			Rh$_z$	13 4	+	+	—	Rh₁Rh	12 9	+	+	—	R^1R^2 R^1r'' or R^2r'
								Rh$_z$rh	0 2	+	+	+	R^zr R^zR^o or R^or^y
								Rh$_z$Rh₁	0 2	—	+	—	$R R^1$ R^zr' or R^1r^y
								Rh$_z$Rh	0 07	+	—	—	R^zR^2 R^zr'' or R^2r^y
								Rh Rh$_z$	0 0004	—	—	—	$R R$ or R^zr^y
			Rh$_z$^{w}	0 6	+	+	+	Rh₁^{w}Rh	0 6	+	+	—	$R^{1w}R^2$ $R^{1w}r'$ or $R^2r'^w$
								Rh$_z$^{w}Rh₁	0 008	—	+	—	$R^{1w}R^z$ $R^{1w}r^y$ or $R^zr'^w$

* In this table Rh₁ is used as a short designation for Rh₀ Rh₂ is short for Rh₀″ rh$_y$ is short for rh ″ and Rh$_z$ is short for 𝔑h₀ ″

† The reduction in the frequency of type rh as compared with that given in earlier charts can be attributed to recognition of bloods of type 𝔑h₁ (containing Rh₀ variant) which are now included in type Rh₁ instead of rh The agglutinogens 𝔑h₀ 𝔑h₁ and 𝔑h and their corresponding genes $\mathfrak{R}^o$ $\mathfrak{R}^1$ and 𝔑 are not given here because this would serve unnecessarily to complicate the chart by increasing the number of possible genotypes to 91 Also no attempt is made to include certain rare exceptional bloods such as those lacking both factors rh and hr′ and/or lacking both rh and hr″

‡ Based on the estimated gene frequencies $r = 0 38$ $r' = 0 006$ $r'' = 0 005$ $r^y = 0 0001$ $r'^w = 0 00005$ $R^o = 0 027$ $R^1 = 0 41$ $R^2 = 0 15$ $R^z = 0 002$ and $R^{1w} = 0 02$.

§ This table does not include hypothetical genes R^{zw} and r^{yw} which must be extremely rare

Taking into account the 12 possible phenotypes, there are 78 matings to be considered (When the reactions of anti-hr″ serums are taken into account, the number of phenotypes is increased to 18 and the number of matings to 171 A table listing these 171 matings has been published by Wiener[4]) A table listing the 78 matings would require more than two pages Boyd[5] has devised a compact method of presenting the various matings in the form of a 12 by 12 table, and table 4 was drawn up after examining the similar table prepared by Boyd It will be noticed that the phenotypes have been numbered, but these numbers are not intended to be used as a new nomenclature for the Rh-Hr types The phenotype numbers are used merely for compactness in presenting the table, and the key to the numbers is given at the top and side of the chart For example, in the mating Rh₂ × Rh₂ phenotype numbers 2, 3, 5, 6, 8, 9, 11, and 12 appear in the box, which means that parents both of type Rh₂ cannot have children of types rh′rh, rh′rh′, rh′rh″, rh$_y$rh′, Rh₁rh, Rh₁Rh₁, Rh₁Rh₂, or Rh$_z$Rh₁ This is readily verified with the aid of tables 2 and 3, since both parents of type Rh₂ can be carriers of genes R^2, R^o, r'', or r, and not of genes R^1, R^z, r', or r^y, so that all children with phenotypes in which one or more of the latter four genes must be present are excluded The numbers in boldface type indicate phenotypes that, if present in the child, exclude maternity Thus, a type Rh₂ mother cannot have a child of type rh′rh′, rh$_y$rh′, Rh₁Rh₁, or Rh$_z$Rh₁

TABLE 2 —*Eight Standard Allelic Genes and Their Corresponding Agglutinogens*

Genes	Corresponding Agglutinogens	Blood Factors Characterizing Each Agglutinogen
r	rh	hr
r'	rh	rh
r'	rh″	rh and hr
r^y	rh$_y$	rh and rh
R^o	Rh	Rh₀ and hr
R^1	Rh₁	Rh₀ and rh
R^2	Rh	Rh₀ rh and hr
R^z	Rh	Rh rh and rh

Taking into account only reactions with serums anti Rh₀ anti rh anti rh and anti hr′

Contrary Opinion on Nomenclature

The tentative report, upon which the present report is based, called attention to the diversity of opinion that exists with reference to problems of blood group nomenclature, and in an accompanying editorial the hope was expressed that 'workers in the field will limit their views on matters of nomenclature to the

Committee on Medicolegal Problems within the next few months, so that they can be considered in the preparation of the final report " In the tentative report, the Committee found itself unable to define a position compatible with all of the diverse opinions in this field and chose a stand that according to its own lights was sound It is desirable to include in this final report a summary of contrary opinion as it appeared in the replies to the call for comments on the tentative report

TABLE 3 —*Rh Hr Phenotypes and Corresponding Genotypes*

	Reactions with Serums				
Phenotype	Anti Rh_0	Anti rh	Anti rh″	Anti hr′	Corresponding Genotypes
rh	—	—	—	+	rr
rh rh	—	+	—	+	$r'r$
rh rh	—	+	—	—	$r'r'$
rh″	—	—	+	+	$r'r'$ and $r''r$
rh rh″	—	+	+	+	$r'r'$ r^yr and r^yr''
rh_yrh	—	+	+	—	r^yr' and r^yr^y
Rh_0	+	—	—	+	R^oR and R^or
Rh_1rh	+	+	—	+	R^1r R^1R^o and R^or'
Rh_1Rh_1	+	+	—	—	R^1R^1 and R^1r'
Rh_2	+	—	+	+	R^2R^2 R^2r'' R^2r R^2R^o and R^or''
Rh_1Rh	+	+	+	+	R^1R^2 R^1r'' R^2r' R^zr R R^o R^zR^2 R^zr' R^or^y and R^2r^y
Rh_zRh_1	+	+	+	—	R^zr' R^zr^y R^zR^1 R^zR^z and R^1r^y

Forty-nine letters were received, of which 43 expressed classifiable opinion on Rh-Hr nomenclature Twenty-one of these were opposed to the recommendation on nomenclature and, for the most part, appeared instead to favor the exclusive adoption of the C-D-E-F system Seventeen were in express agreement with the recommendation that "in medicolegal reports, unless and until some other convention is agreed upon, the original Rh-Hr nomenclature be retained as the sole nomenclature for this blood group system " Five others would retain both the Rh-Hr and C-D-E-F nomenclature The communications received therefore suggest an approximately equal division of opinion on nomenclature

In order to present properly the criticisms received regarding the report, it is necessary first to review the points on which the Committee bases the position it adopted These were as follows 1 There is need for a uniform nomenclature in medicolegal practice 2 The C-D-E-F notation is undesirable because it is based on principles in conflict with established serology 3 The Rh-Hr nomenclature is based on rational serologic and genetic grounds It was suggested, therefore, that unless and until some better nomenclature is developed, it would be well to adopt the Rh-Hr nomenclature for exclusive use in medicolegal practice In the present section of this report an effort will be made to present a synopsis of the views of those who opposed this suggestion The Committee does not identify itself with these assertions

With the eventual desirability of a uniform nomenclature there appears to be no serious quarrel The question has been raised, however, of whether a proper choice can be made at this time, and several correspondents find it particularly repugnant that a decision should be made by a four-member subcommittee that is not representative of the full spectrum of opinion in the field The tentative report did not attempt to document its position on points 2 and 3 of the outline of the argument presented above, though references were cited, and the correspondence accordingly did not provide a basis for debate on these issues There were, however, several expressions of doubt that the facts presently available compel a decision in favor of the principles, either serologic or genetic, upon which the Rh-Hr nomenclature is based Furthermore, in several instances, opinion was expressed to the effect that correctness in principle is not a proper issue in this matter, either of the available systems of nomenclature may be used to represent a test situation regardless of the genetic and serologic bases conceived for the situation In fact, it was pointed out that the present inclination to consider the C-D-E-F symbols as reflecting "completely linked genes' is operationally indistinguishable, on genetic grounds, from the Rh-Hr postulate of multiple allelism Differences on the serologic level were not discussed, but it was asserted that many immunologists do not recognize distinctions among agglutinogens, blood factors, and genes

TABLE 4 —*Exclusion of*

		Phenotype of Putative Father				
	Phenotype of Putative Mother	1 rh	2 rh rh	3 rh rh	4 rh	5 rh rh″
1	rh	2 3 4 5 6 7 8 9 10 11 12	3 4, 5 6 7 8 9 10 11 12	1 3 4 5, 6 7, 8 9 10 11 12	2 3, 5, 6 7 8 9 10, 11 12	3, 6 7 8 9 10 11 12
2	rh rh	3 4 5 6 7 8 9 10 11 12	4 5 6 7 8 9 10 11 12	1 4 5 6 7 8 9 10, 11 12	3 6 7 8 9 10 11 12	7, 8 9 10 11 12
3	rh rh	1 3 4 5 6 7 8 9 10 11 12	1 4 5 6 7 8 9 10 11 12	1 2 4 5 6, 7 8 9 10, 11 12	1 3 4 6 7 8 9 10 11, 12	1 4 7, 8 9 10 11 12
4	rh″	2 3 5 6 7 8 9 10 11 12	3 6 7 8 9 10 11 12	1 3 4, 6 7, 8 9 10, 11 12	2 3 5 6 7 8 9 10 11 12	3 6 7 8 9 10 11 12
5	rh rh″	3 6 7 8 9 10 11 12	7 8 9 10 11 12	1 4 7 8 9 10 11 12	3 6 7 8 9 10 11 12	7 8 9 10 11 12
6	rh_yrh	1 3 4 6 7 8 9 10 11 12	1, 4 7 8 9 10 11 12	1 2 4 5 7 8 9 10 11, 12	1 3 4 6 7 8 9 10 11 12	1 4 7 8 9, 10 11 12
7	Rh_0	2 3, 4 5 6 8 9 10 11 12	3 4 5 6 9 10 11, 12	1 3 4 5 6 7 9 10 11 12	2 3, 5 6 8 9 11 12	3 6 9 12
8	Rh_1rh	3 4 5 6 9 10 11 12	4 5 6 10 11 12	1, 4 5 6 7 10 11 12	3 6 9 12	None
9	Rh_1Rh_1	1 3 4 5 6 7 9 10 11 12	1 4 5 6 7 10 11 12	1 2 4 5 6 7 8 10 11 12	1, 3, 4 6 7, 9 10 12	1 4 7 10
10	Rh	2 3 5 6 8 9, 11 12	3 6 9 12	1 3, 4 6 7 9 10, 12	2 3 5 6 8 9 11 12	3 6 9, 12
11	Rh_1Rh_2	3 6 9 12	None	1 4 7 10	3 6 9 12	None
12	Rh_zRh_1	1 3 4 6 7 9 10 12	1 4 7 10	1 2 4 5 7, 8 10 11	1 3 4 6 7 9 10 12	1 4 7 10

To understand and use this chart quickly and easily the phenotype names and numbers should be used in conjunction with the table of Rh Hr reactions (table 3) 1 Determine the phenotypes of the blood of the mother putative father and the child or children using potent and specific anti Rh_0, anti rh, anti rh and anti hr′ serums including appropriate controls 2 Assign the corresponding phenotype symbol and number to each individual tested 3 Find the assigned number of the mother and father on the side and top columns of the table and locate the box at which both intersect 4 The child or children are not possible from this mating if their assigned numbers appear in this box 5 Phenotype numbers given in boldface represent children for whom maternity

The most forcefully expressed contrary opinion, however had to do with the question of usage and convenience Several correspondents, particularly from Britain and Europe, asserted that the C-D-E-F system or some modification of it is in exclusive use there and attested to its clarity and adequacy In America too, this system appears to have been adopted by teachers in at least two medical schools and a state of confusion is anticipated if in medical reporting a "return" to the Rh-Hr nomenclature, which is unfamiliar to the graduates of these schools, is advocated The grounds for adopting the C-D-E-F rather than the Rh-Hr system in teaching are frankly expedient ones, it was repeatedly asserted that students do not comprehend test situations or communicate in terms of symbols involving primes, subscripts, bold-face, Roman, italic, and German script Correspondents who testified to the difficulty of teaching or communicating in such terms included several who believe that the Rh-Hr conceptual basis of multiple allelic control of related antigens might be more sound than the one gene–one antigen–one antibody–one symbol" basis of the C-D-E-F system

Finally, other correspondents expressed the hope that a new system of nomenclature might appear that would command a clear majority of scientific support and usage No strong opinions were expressed as to what this nomenclature should be like, although there were a few tentative suggestions In the interval, however, it was urged that the adoption of a uniform nomenclature should await decision by a more representative body than the present committee, after more extensive and intensive consideration than has yet been given this difficult subject

Parentage by Rh-Hr Tests°

Phenotype of Putative Father—Continued						
6 rh_yrh	7 Rh_0	8 Rh_1rh	9 Rh_1Rh_1	10 Rh_2	11 Rh_1Rh_2	12 Rh_zRh_1
1 3 4 6 7 8 9 10 11 12	2 3, 4 5 6, 8 9, 10 11 12	3 4 5 6 9 10 11 12	1 3 4 5 6 7 9 10 11 12	2 3 5 6 8 9 11 12	3 6 9 12	1 3 4 6 7 9 10 12
1 4 7 8 9 10 11 12	3 4 5 6 9 10 11 12	4 5 6 10 11 12	1 4 5 6 7 10 11 12	3 6 9 12	None	1 4 7 10
1 2 4 5 7 8 9 10 11 12	1 3 4 5 6 7 9 10 11 12	1 4 5 6 7 10 11 12	1 2 4 5 6 7 8 10 11 12	1 3 4 6 7 9 10 12	1 4 7 10	1 2, 4 5 7 8 10 11
1 3 4 6 7 8 9 10 11 12	2 3 5 6 8 9 11 12	3 6 9 12	1 3 4 6 7 9 10 12	2 3 5 6 8 9 11 12	3 6 9 12	1, 3 4 6 7 9 10 12
1 4 7 8 9 10 11 12	3 6 9 12	None	1 4 7 10	3 6 9 12	None	1 4 7 10
1 2, 4 5 7 8 9 10 11 12	1 3 4, 6 7 9 10 12	1 4 7 10	1 2 4 5 7 8 10 11	1, 3 4 6 7 9 10 12	1 4 7 10	1 2 4 5 7 8 10 11
1 3 4 6 7 9 10 12	2 3 4 5 6 8 9 10 11 12	3 4 5 6 9 10 11 12	1 3 4 5 6 7 9 10 11, 12	2, 3 5 6 8 9 11 12	3 6 9 12	1, 3 4 6 7 9 10 12
1 4 7 10	3 4, 5 6 9 10 11 12	4 5 6 10 11 12	1 4 5 6 7 10 11 12	3 6 9 12	None	1 4 7 10
1 2 4 5 7 8 10 11	1 3 4 5 6 7 9 10 11 12	1 4 5 6 7 10 11 12	1 2 4 5 6 7 8 10 11 12	1 3 4 6 7 9 10 12	1 4 7 10	1 2 4, 5 7 8 10 11
1 3 4 6 7 9 10 12	2 3 5 6 8 9 11 12	3 6 9 12	1 3 4 6 7 9 10 12	2, 3 5 6 8 9 11 12	3 6 9 12	1, 3 4 6 7 9 10 12
1 4 7 10	3 6 9 12	None	1 4 7 10	3 6 9 12	None	1 4 7 10
1 2 4 5 7 8 10 11	1 3 4, 6 7 9 10 12	1 4 7 10	1 2 4 5 7 8 10 11	1, 3 4 6 7 9 10 12	1 4 7 10	1 2 4 5 7 8 10 11

is excluded This table was prepared after an examination of a similar table prepared by Dr W C Boyd The phenotypes have been presented and numbered in *an order different from* that used by Dr Boyd The committee believes *this order to be more logical but Dr Boyd informs us that he still prefers* the order used in his version of the table He also informs us that he does not approve of the inclusion in the table of numbers corresponding to phenotypes of children who could not be born to the mother in question

Use of Newer Blood Factors in Cases of Disputed Parentage

Studies on the distribution and heredity of the agglutinogens and blood factors have shown that certain of them are related to others so as to form systems Certain blood factors have the peculiarity that blood lacking the factor or blood possessing the factor is extremely rare Table 5 summarizes the present status of knowledge of the human blood groups, with special reference to their medicolegal application When blood tests are carried out in problems of disputed parentage, the examination is usually limited to the A-B-O, M-N, and Rh-Hr systems Moreover, the tests are further limited to particular factors of these three systems In the preceding report of 1952, it was recommended that the medicolegal application of the blood test should not be extended further for the time being For reasons pointed out below, it is still premature to apply these newer tests routinely in medicolegal cases, though there might be special circumstances when their use would be permissible

A-B-O System—For general medicolegal purposes, the blood tests should be restricted to the factors A and B and to the four blood groups, O, A, B, and AB The tests should include examination of the serum (or plasma) of each individual for its isoagglutinin content, as well as tests on the red blood cells with anti-A and anti-B serums[6] Some workers recommend the use of high-titered group O testing serum in order to detect blood cells of the rare subgroup A_4 Tests for the subgroups of A are not sufficiently reliable for medicolegal use The serologic distinction between agglutinogens A_1 and A_2 is not sharp, so that the diagnosis is not infrequently difficult to make, especially in newborn babies and in individuals of group AB Moreover, intermediate forms exist between A_1 and A_2 Therefore, this committee finds that tests for the subgroups of A remain too unreliable for general medicolegal use At any rate, the chances of excluding paternity for a falsely accused man, which is about 18 5% using factors A and B, would be increased by only 1 or 2% were the subgroups of A applied (table 5)

M-N-S System—For medicolegal purposes the paternity blood tests are preferably restricted to the factors M and N Antiserums for these factors are prepared in rabbits, and from most of the antiserums satisfactory reagents can be prepared that give reactions of high avidity and specificity The reagents, particularly for factor N, are generally of low titer, but this does not appear to interfere with the reliability of the results It is recommended that the tests be carried out with at least two different antiserums of each specificity Satisfactory anti-N reagents can also be prepared from the seeds of Vicia graminae, which may be used if desired for purposes of confirmation[illegible] Under no circumstances should the diagnosis be based solely on tests with such extracts Tests on tens of thousands of families and mother-child combinations have proved that exclusion of paternity based on the M-N types is as reliable as exclusion based on the A-B-O tests

Reagents for factor S are obtained from human individuals sensitized by transfusion or pregnancy While the titer of these reagents is generally low, the reactions are of high avidity and specificity like the tests for M and N However, the number of studies to date on the S factor is small, because of the scarcity of this reagent, which, unlike anti-M and anti-N cannot, at present, be produced at will Therefore, the medicolegal application of the S test should be limited to selected cases, and exclusions of parentage based on this test alone should be qualified by pointing out that the statistical basis for this test is still incomplete, though there is no reason to doubt its validity Reagents for anti-s are even rarer than anti-S Moreover, the anti-s reagents available up to the present had to be used with the antiglobulin technique, and the results were reproducible only with difficulty For these reasons, the medicolegal application of factor s is not recommended for the present It is hoped that the technique of the test for factor s will be perfected, since the combined tests for S and s will increase substantially the chances of excluding paternity The addition of anti-S alone adds about 40% as much as the addition of both anti S and anti-s Antiserums for factors Hunter and Henshaw (table 5) are still in limited use, so that such tests are not yet available for medicolegal purposes Recent work indicates that factor U is related to the M-N-S system, but, because of the almost universal distribution of this factor, it has little medicolegal importance

TABLE 5 —*Blood Groups in Man Medicolegal Application*

System	Blood Factors	Number of Identifiable Types	Isoantibodies		Identification*		Exclusion of Paternity	
			Natural	Isoimmune	Factors Tested for	Chances of Success %†	Factors Tested for	Chances of Success %‡
A B O	A B C O and variants such as A_1 A_2 $A_{1,2}$, and A_3, and A_4	6 major groups and sub groups—O A_1 A B A_1B A B also rarer sub groups as A_3 A_3B	Regularly present except during neonatal period	Common	A_1 A B	67 2	A B	17 6
M N S	M N, S s, Hu (Hunter) He (Henshaw) U and variants such as M_2, N_2	6 major types using the more readily available serums anti M anti N and anti S	Rare	Rare	M N S-s	83 6	M N M N S	18 0 27 4
Rh Hr	Rh_0 rh , rh rh^w hr', hr' hr and variants such as Rh_0	28 major types but only 9 have frequencies greater than 1%	A few questionable cases reported	Common	Rh_0 rh rh rh^w hr' hr″	80 5	Rh_0-rh'rh' hr'	25 0
P	P and variants Tj^a	2 major types	Infrequent	Very rare	P	33 4		
K k	K and k	3	None reported	Occasional	K k	16 3		
Lutheran	Lu	2	None reported	Rare	Lu^a	14 1		
Duffy (Fy)§	Fy^a and Fy^b	2 major types because anti Fy^b serum is not available	Rare	Several cases	Fy^a	45 1		
Lewis (Le)	Le^a and Le^b	3 (?)	Infrequent	Rare	Le^a Le^b	43 3		
Kidd (Jk)§	Jk^a and Jk^b	2 major types because anti Jk^b serum is not available	None reported	Few cases	Jk^a-Jk^b	62 5		
Private blood types								
Rare blood factors	Levay Gr (Graydon) Mi^a (Miltenberger) Vw, Becker Be^a (Berrens) Ca (Cavaliere) Wr^a Diego¶	Positively reacting bloods are very rare	None reported	Very rare				
Factors with almost universal distribution	Vel and I	Negatively reacting bloods are very rare	None reported	1 case anti I 2 cases anti Vel				

* The figures for the chances given in this column are based on figures given in Race and Sanger s Blood Groups in Man ed 2 1954 Additional relevant calculations have been made by Boyd *Boston Med Quart* I 28-29 1956

† Chances of success (1) Identification refers to the chance of proving that a given blood sample did not come from a specific individual because of a difference in blood group (2) Exclusion of paternity gives the chance of proving that a falsely accused man is not the father of a given child

‡ The combined chance of excluding paternity using the A B O M N and Rh Hr systems is approximately 55% The P, K k, Fy^a Jk^a and Lu^a factors if applied would increase the chances by only 6 or 7%

§ Some workers use the simpler symbols F and f for the blood factors of the Duffy system and the symbols J and j for the blood factors of the Kidd system

¶ The Diego factor is common however among Amerindians Recent work indicates that the rare blood factors Mi and Vw are related and belong to the M N S blood group system

Rh-Hr System —As has already been pointed out, in medicolegal cases the paternity blood tests are generally limited to the factors Rh_0, rh', rh″, and hr' Actually many more Rh-Hr factors have been found Of all the Rh-Hr factors known, the most important are the four Rh factors Rh_0, rh', rh″, and rh^w and the three Hr factors hr', hr″, and hr The reactions of these seven antiserums and the types they determine are given in table 1

As can be seen from table 1, as many as 28 sharply defined Rh-Hr phenotypes can be differentiated with the aid of the 7 Rh-Hr serums, corresponding to which there are 55 genotypes theoretically possible This does not take into account the additional phenotypes and genotypes resulting from the existence of Rh_0 variants and certain other rare Rh-Hr agglutinogens In practice the number of phenotypes encountered will be considerably smaller, because many of the phenotypes are rare Thus, if only those phenotypes that have an incidence of 1% or higher are counted, there are only 9 or 10 phenotypes among those theoretically possible that are apt to be encountered in tests on a short series of individuals The medicolegal expert must also be aware of the existence of rare individuals with an agglutinogen having the factor Rh_0 but lacking both factors of each of the two pairs rh'-hr' and rh"-hr" Such bloods have been labeled as "deletions," but a more conservative designation for this type is Rh_0^x with $R^{0x}R^{0x}$ as the corresponding genotype The existence of these rare agglutinogens affects the validity of the rule that an rh'-negative parent cannot have an hr'-negative child and an hr'-negative parent cannot have an rh'-negative child For example, if the putative father belongs to type Rh_1Rh_1 and the child to type Rh_2, paternity is not necessarily excluded, provided the man's genotype is R^1R^{0x}, and the baby's genotype R^2R^{0x} Therefore, such exclusions of paternity call for some mild qualification No qualification is needed when the rule is recorded as follows An rh'-negative parent lacking the Rh_0 factor cannot have an hr'-negative child, and an hr'-negative parent cannot have an rh'-negative child lacking the Rh_0 factor It has been found that individuals who carry the gene R^{0x}, either heterozygous or homozygous, have red blood cells which are clumped by conglutinating Rh_0 antiserums, even when the tests are carried out in saline medium It would appear, therefore, that this additional test would eliminate the need for any qualification

The availability of anti-rh^w serum further increases the chances of excluding paternity Aside from the fact that the rh^w factor cannot appear in a child unless present in one or both parents, particular combinations exclude paternity in certain instances where no decision would be possible without the aid of this antiserum For example, a parent of type Rh_1^wrh cannot have a child of type Rh_1Rh_1, and a parent of type Rh_1Rh_1 cannot have a child of type Rh_1^wrh

The use of anti-hr serum (table 1) may help resolve certain problems of disputed parentage The recently discovered factor hr has no Rh factor counterpart, thus differing from factors hr' and hr", which have the counterparts rh' and rh" respectively With possible rare exceptions, the factor hr has been found present only in the agglutinogens determined by genes r and R^0 and is absent from the agglutinogens determined by the genes r', r'', r^y, R^1, R^2, and R^z Thus, the counterpart of anti-hr, which may be designated anti-rh, when and if it is found, can be recognized by the fact that it will behave like a mixture of anti-rh' and anti-rh" When a putative parent belongs to type Rh_z (blood with the three factors Rh_0, rh', and rh"), and the child to type rh or Rh_0, or vice versa, parentage is excluded, provided it can be shown that the individual of type Rh_z is not carrying the genes R^z or r^y This may be possible with the aid of anti-hr serum, namely, if it can be shown that the blood has factors hr' and hr" but lacks the hr factor (table 1)

As already mentioned, certain workers routinely use anti-hr" serum in medicolegal cases of disputed paternity The use of this serum adds little to the chance of excluding paternity because of the low frequency of hr"-negative individuals in the population (table 1) Moreover, the experimental basis for the practical application of these tests is not very firm, since only a few publications describe heredity studies in which anti-hr" serum was used Therefore, the Committee does not recommend the routine medicolegal application of this reagent, though it is recognized that the test may prove helpful in occasional selected cases

Recent work has revealed the existence of still other factors belonging to the Rh-Hr system, notably, factor V, often found associated with the genes r and R^0, especially in Negroes [8] In addition, a series of new Rh factors has been discovered that, with rare exceptions, occur in association with the factor Rh_0 (similar to the association of factor rh^w with rh') and that have tentatively been designated as Rh^A, Rh^B, and so forth [9] Obviously, the medicolegal application of such factors is premature Indeed, because of the lack of availability of adequate amounts of suitable antiserums and the limited knowledge due to the small number of investigations carried out to date, the routine use in medicolegal work of factors rh^w, hr", and hr is inadvisable This Committee recommends, therefore, that for routine medicolegal work, for the present, the Rh-Hr tests be limited to the factors Rh_0, rh', rh", and hr'

P System —The antiserums available for use have been mostly of human origin and contain irregular agglutinins giving most distinct reactions at low temperature Due to the presence in such serums of interfering nonspecific cold agglutinins, and the low titer of these reagents, the results of such tests are not sufficiently reliable for medicolegal purposes This committeee, therefore, recommends that the P tests should not be used in routine medicolegal practice Recent work indicates that the high incidence factor Tj^a is related to the P system It should also be mentioned that the so-called Q factor of Japanese investigators is probably identical with factor P [10]

Lewis System —Knowledge of the Lewis system, insofar as its medicolegal applications are concerned, is still in a confused state due to the lack of potent and specific reagents The only reagents available appear to be natural irregular isoagglutinins encountered in rare human serums, which react best at low temperature and rarely have a titer exceeding 2 to 4 units Due to the presence of interfering cold agglutinins, especially anti-O in many anti-Le^b serums, these tests are not sufficiently reliable for medicolegal use

Kell System —Many additional examples of anti-K serum have been encountered during recent years, and all have similar properties, in that they react best by the conglutination and antiglobulin technique Therefore, these reagents should not be used for typing blood with red blood cells already coated by antibody globulin, as in infants with hemolytic disease or patients with acquired hemolytic anemia Moreover, the agglutinates are somewhat more fragile than in Rh-Hr reactions, so that the reactions are not always readily reproducible This difficulty in technique has apparently discouraged extensive investigation of this system Furthermore, the use of the rare anti-k serum adds little information, since only one out of approximately 500 bloods fails to clump in such antiserums For these reasons, as well as the small number of family studies carried out to date, this committee recommends that the K-k tests should not be used in routine medicolegal practice but be reserved for special cases only

Duffy and Kidd Systems—The Duffy and Kidd systems are grouped together because of the similarity in behavior of the available reagents These reagents give the most distinct reactions only by the antiglobulin method, and the agglutinates are even more fragile than those encountered in the Kell tests Because of the difficulty in reproducing the reactions, and the small number of family studies carried out to date, in the opinion of this committee, the Duffy and Kidd tests are not suitable for routine medicolegal purposes Therefore, this committee recommends that tests for factors F (or Fy^a) and J (or Jk^a) should not be carried out in routine medicolegal practice However, there are some experts who feel that these tests are sufficiently reliable for medicolegal use

The so called family or private factors (table 5) have little or no value in medicolegal practice because of their rarity in the general population

Blood Tests as Circumstantial Evidence of Parentage

The expert in the field of blood grouping is accustomed to think of blood tests as a method of establishing nonparentage only When the blood types of the child match genetically with those of the supposed parents this is considered an inconclusive finding because of the possibility of coincidence However, with the increase in the number of detectable blood factors and the number of blood group systems whose mode of inheritance is known, the possibility suggests itself of using blood tests as circumstantial evidence of paternity or maternity Assignment of parents is occasionally possible in disputed parentage cases involving cattle [11]

In almost all cases, despite the combined use of A-B-O, M-N, and Rh-Hr tests, such circumstantial evidence of parentage will be weak For example, if both putative parents and the child belong to type O M Rh_1rh, there is a substantial chance of coincidence Exactly where to draw the line is difficult to state This committee feels, therefore, that the use of blood tests as circumstantial evidence of paternity is not advisable in routine medicolegal practice In fact, attempts to apply blood tests in this way carry the danger that they may serve to confuse the issue and cause the court to discredit the blood tests altogether

On the other hand, there are certain unusual cases that cannot be ignored, where the use of blood tests as circumstantial evidence of paternity or maternity appears to be justified For example, if the putative father belongs to type rh″, the mother to type rh, and the child to type rh″, the conscientious examiner will feel obligated to call this unusual circumstance to the attention of the court Since rh″ occurs in less than 0 5% of the population, the coincidental presence of this type in the child and the accused man is circumstantial evidence of paternity, assuming, of course, it is ascertained that a co-relative such as a brother of the same type as the accused cannot be involved However, this committee feels that such an observation should not be included in the official report but should be mentioned and explained in a covering letter accompanying the report Other situations in which the results of blood tests may perhaps be considered circumstantial evidence of paternity are cases where the child and accused man both belong to type rh′ or both have the factor rh^w, lacking from the blood of the mother As another example the instance where the baby and the putative father both are Kell positive and group B, while the mother is Kell negative and group O, may be cited

Model Blood Grouping Law

To further the medicolegal application of blood grouping tests in cases of disputed paternity, the passage of state laws authorizing courts to order these tests appears to be necessary At the time when the previous report of this committee was published, laws had been passed in the states of Maine, Maryland, New Jersey, New York, North Carolina, Ohio, Pennsylvania, South Dakota, and Wisconsin During the past five years four more states have been added to the list, namely, Connecticut, Massachusetts, Minnesota, and New Hampshire The main obstacle to the adoption of similar laws by all states is the dearth of qualified experts specializing in the field of blood grouping Even among workers in the field, unnecessary controversy regarding nomenclature certainly has not helped to instill confidence in the tests among lawyers and jurists From the point of view of the legislator and jurist, the wider medicolegal application of blood tests may be fostered by the availability of a model blood-test law A Uniform Act on Blood Tests to Determine Paternity was drafted by the National Conference of Commissioners on Uniform State Laws and approved by the conference at its annual meeting in San Francisco, Sept 8-13, 1952 This act was later approved by the American Bar Association at its meeting in San Francisco, Sept 19, 1952

The proposed uniform act has many commendable features However, the following simplified version of the proposed act would be an improvement, in the opinion of this committee

Uniform Act on Blood Tests in Cases of Disputed Parentage in Man

Be it enacted (use the proper enacting clause for the state)

Section 1 Authority for Test In a civil action in which parentage is a relevant fact, the court upon its own initiative or upon motion of any party in the action shall order the mother, child, and alleged father to submit to blood tests

Section 2 Selection of Experts The tests shall be made by qualified experts in the field of blood grouping who shall be appointed by the court For a list of such experts the court shall apply to the local medical association or to the American Medical Association The expert may be called by the court to testify on the findings and shall be subject to cross-examination Any party may demand that other qualified experts perform independent tests under order of the court

Section 3 Compensation of Expert Witnesses The compensation of each expert appointed by the court shall be fixed at a reasonable amount and paid as the court shall order

Section 4 Effect of Test Results If the blood tests show that the alleged parent is not the parent of the child, such a finding shall be admissible as evidence If the blood tests show the possibility of the alleged parents parentage the admission of such evidence shall be within the discretion of the court

Section 5 Effect on Presumption of Legitimacy The presumption of the legitimacy of a child born during wedlock is overcome if the court finds that the blood tests show that the husband is not the father of the child

Section 6 Applicability to Criminal Actions This act shall also be applicable in criminal cases in which the problem of parentage arises, such as cases of rape and kidnapping

Section 7 Severability Clause If any part of this act is declared invalid the remaining portion shall continue in full force and effect and shall be construed as being the entire act

SECTION 8 Short Title This act may be cited as the Uniform Act for Blood Tests in Disputed Parentage in Man -

SECTION 9 Repeal All acts or parts of acts which are inconsistent with the provisions of this act are hereby repealed

SECTION 10 Time of Taking Effect This act shall take effect

Two important aspects of the medicolegal application of blood tests are the questions of qualifications of experts and the application of blood tests in the examination of dried stains of blood and secretions These two subjects are not treated here because they have already been discussed in the report published in 1952, and no important changes have occurred It is essential that only qualified workers carry out these examinations, because serious errors have occurred when inexperienced workers undertook to perform these tests It must be borne in mind that blood tests are performed by natural persons, so that experts to be qualified are individuals and not institutions A detailed discussion of the pitfalls in the grouping of dried blood stains can be found in a recent article on the subject [12] The question of qualifications of experts remains a difficult and unsolved problem requiring serious study

Summary and Conclusions

Because the use of two systems of nomenclature for the Rh-Hr system leads to confusion and misunderstanding, the Committee on Medicolegal Problems of the American Medical Association recommends the adoption of a single uniform system for medicolegal reports Of the two available systems, the Committee favors the Rh-Hr over the C-D-E for what it considers strong reasons It recognized faults in both systems, and suggests that the achievement of an internationally acceptable terminology is a desirable objective In the interim, it is recommended that, unless and until some other convention can be agreed upon, the original Rh-Hr notations be kept as the standard and sole nomenclature for preparing approved medicolegal reports on Rh-Hr types

It is recommended that routine medicolegal applications of blood grouping be restricted at present to tests for the four blood groups O, A, B, and AB of the A-B-O system, the three types M, N, and MN of the M-N-S system, and factors Rh_0, rh′, rh″, and hr′ of the Rh-Hr system Tests for additional factors and systems are considered insufficiently established for routine use at present, although they may provide evidence in particular selected cases Such evidence should be submitted in a separate letter not part of the standard report and should be presented with proper caution Similarly, the value of rare combinations of groups providing indication of paternity, in contrast to the conventional use of the tests to establish only nonpaternity, should be recognized in unusual cases but should be treated with caution in a separate communication not part of the definitive report The question of qualification of experts remains a difficult and unsolved problem requiring serious study

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Recent Court Decisions

Prochnow v *Prochnow*, 80 N W (2d) 278 (Wis, 1957) —The results of a blood test excluding paternity were held not to be conclusive where the statute requires that "any party asserting the illegitimacy of the child shall have the burden of proving beyond all reasonable doubt that the husband was not the father of the child" The child was held to be legitimate on testimony of wife that she had timely intercourse with her husband and none other

Ross v *Marx*, 93 A (2d) 597 (N J, 1952) —Medical testimony was introduced to show the results of blood-grouping tests conducted on the plaintiff, her child, and the defendant The tests definitely established nonpaternity The trial judge stated that he thought the results of such tests were conclusive on the issue of paternity The superior court acknowledged that, under statute, the results of such tests are admissible in evidence only when they definitely establish exclusion It held, however, that the results are not conclusive Evidence that the test was incompetently administered would be properly admissible

Clark v *Rysedorph*, 118, N Y S (2d) 103 (N Y, 1952) —During the course of the trial the judge ordered three separate blood-grouping tests to be conducted on the plaintiff, her child, and the defendant Two M-N tests and one A-B test were given Each test excluded the defendant as the father of the plaintiff's child When such evidence is uncontradicted, it is conclusive To reject such testimony, said the court, would be to ignore scientific facts

Miller v *Domanski,* 97 A (2d) 641 (N J, 1953) – The trial court, pursuant to state statute, directed Dr Philip Levine to perform blood-grouping tests on the plaintiff, her child, and the defendant in a bastardy proceeding Dr Levine testified that, unless the assumption was made that the plaintiff had a very rare and unusual genetic make-up, the tests did show exclusion The court then refused to permit him to testify as to the results of the tests, even though, when the pertinent statute was enacted in 1939, the problem of an unusual serologic make-up was unknown to medical science The superior court held that the trial court correctly applied the statute, which forbids using the results of blood-grouping tests as evidence except where such tests definitely establish exclusion, and judgment for the plaintiff was therefore affirmed

United States ex rel Lee Kum Hoy v *Shaughnessy,* 115 F Supp 302 (S D N Y, 1953) –The admission into evidence at an administrative hearing of the bare blood-grouping reports and the failure to provide opportunity to cross-examine the doctor as to the qualifications of the test constituted a denial of due process

United States ex rel Dong Wing Ott v *Shaughnessy,* 116 F Supp 745 (S D N Y, 1953) –An administrative tribunal does not violate due process by taking official notice of scientific treatises on the subject of blood-grouping tests in exclusions of paternity

Chin Wing Gwong v *Dulles,* 139 F Supp 116 (D R I, 1956) –Blood tests excluding paternity were denied conclusive weight on the ground that the qualifications of the testing procedure were not shown

Pomainville v *Bicknell,* 109 A (2d) 342 (Vt, 1954) Conclusive weight to blood tests excluding paternity was denied by the court because the technician who conducted the tests failed to testify

People v *Nichols,* 67 N W (2d) 230 (Mich, 1954) The results of blood-grouping tests that do not exclude paternity have "not the slightest probative value or tendency to prove paternity and are inadmissible in evidence

Lee On v *Dulles,* 131 F Supp 310 (Mass, 1955) – The refusal to submit to a test by a nonparty whose blood groupings are relevant to the issue of paternity does not warrant an inference that the nonparty feared the results where the refusal is due to 'the inability to meet costs of blood tests and expert witnesses to controvert unfavorable conclusions which government experts might erroneously draw from the results of these tests"

Lee Wing Get v *Dulles,* 18 F R D 415 (E D N Y, 1955) –In an action for derivative citizenship, the court, apparently forgetting the demise of the Rules of Conformity Act, ordered the blood test of a nonparty mother under New York Civil Practice Act, section 306-a

Fong Sik Leung v *Dulles,* 226 Fed (2d) 74 (9 Cir, 1955), *Yee Szet Foo* v *Dulles,* 18 F R D 237 (S D N Y, 1955), *Dulles* v *Quan Yoke Fong,* 237 Fed (2d) 496 (9 Cir, 1956) –Where an infant seeks a declaratory judgment in a suit by his father-guardian *ad litem,* the court may not order, under rule 35 (a) of the Federal Rules of Civil Procedure, blood tests of the father-next friend, the parents, or the brothers or sisters

Chin Nee Deu v *Dulles,* 18 F R D 350 (S D N Y, 1955) –Under the provisions of rule 35 (a) of the Federal Rules of Civil Procedure, in an action to which the physical condition of a party is in controversy, the court may order him to submit to a physical examination by a physician Thus, where an infant seeks a declaratory judgment of his own derivative citizenship in an action brought by his 'father as next friend, the infant may be compelled to submit to a blood test, but the court may not order blood tests of the father-next friend

NOTE Blood tests for nonparentage on an individual seeking admission to this country on the basis of derivative citizenship, without testing his putative parents, would obviously be pointless

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Arteriosclerotic Aneurysms –Arteriosclerotic aneurysms occur in degenerative disease of the thoracic aorta and are a malady of the elderly Arteriosclerotic aortic aneurysms may be asymptomatic, but often there is a history of hypertension When symptoms occur the situation is ominous Backache may be due to erosion of the bodies of the dorsal vertebrae by the aneurysm, hoarseness can be caused by recurrent laryngeal nerve paralysis, and hemoptysis can be caused by erosion or stenosis of a large pulmonary artery In a small series of six cases diagnosed with the aid of angiocardiography the majority had symptoms due to the aneurysm, of these, three (50%) were dead within a year Diagnosis of aneurysms of the thoracic aorta depends upon the roentgen findings of mediastinal or hilar masses or an enlarged aorta Differentiation from mediastinal tumors may be difficult, if not impossible It then becomes necessary to perform contrast studies of the cardiovascular system Angiocardiography can be depended upon to reveal saccular and fusiform aneurysms, as well as dilatation, tortuosity, unfolding and congenital anomalies of the aorta The diagnosis of arteriosclerotic aneurysms of the aorta depends upon the presence of a negative history and serologic test for syphilis in the older age groups, and the location of the aneurysm in the arch and descending portions The absence of severe dilatation and a regular smooth ascending aorta favor the diagnosis of arteriosclerosis The decision to perform surgery for arteriosclerotic thoracic aneurysms must take into account the advanced age and the tendency for arteriosclerosis to occur elsewhere In the heart, there may be coronary thrombosis or insufficiency, in the brain, cerebral thrombosis or hemiplegia, in the abdomen, aortic aneurysm or occlusion, and in the legs, arterial occlusion or insufficiency Despite all these, constant vigilance to detect the case suitable for surgery is recommended –I Steinberg, M D, Diagnosis of Arteriosclerotic Aneurysms of the Thoracic Aorta, *Annals of Internal Medicine,* February, 1957

COMMITTEE ON REHABILITATION

REPORT OF THE COMMITTEE ON REHABILITATION

The following report, which has been reviewed by the Board of Trustees of the American Medical Association, has been adopted for publication by the Association's Committee on Rehabilitation.

Ralph E. De Forest, M.D., *Secretary*

During the past 50 years medicine has made rapid advances in its ability to save the lives of the sick and injured. In this period our life span has been increased by more than one-third. A longer life span, together with a growing population and the increased number of persons injured during their daily activities of work and play, has resulted in a tremendous rise in the number of disabled individuals. The disabled and handicapped may become a burden on their families or society and may, even more unfortunately, become engulfed in their own feelings of insecurity, despair, and hopelessness. In response to the needs of the disabled and handicapped, a humanitarian movement, "rehabilitation," has developed and continues to expand in the United States. Since rehabilitation services are provided in so many ways, some confusion exists as to what is meant by and included within this term. However, some confusion is to be expected during the course of the expansion and development of almost any concept of such magnitude as that encompassed by present-day rehabilitation.

Stated in broad and simple terms rehabilitation services provide the total medical care needed to restore the sick and injured to maximal obtainable function, assist in psychological and social adjustment, provide occupational retraining if necessary, and either secure employment if possible, or at least strive to develop independence so that the individual may become self-sustaining. Success in rehabilitation is dependent, then, upon comprehensive care, including (1) medical and surgical diagnosis and treatment which must continue beyond the end of the 'acute stage' of disease or injury to the point of maximal reduction of physical or mental disability, (2) social service, (3) vocational retraining and counseling, and (4) job placement.

There is need for increased utilization of the many ancillary personnel such as physical therapists, occupational therapists, clinical psychologists, and others who work under direct medical supervision. The physician also needs to become aware of the great amount of work already done in the nonmedical aspects of rehabilitation in the fields of education, sociology, and vocational counseling and placement. This is necessary because, in addition to the medical care provided by the physician, the patient must also receive the benefits of these other fields dedicated to the betterment of the disabled. It seems reasonable to assume, however, that the physician should accept leadership in seeing that adequate and total rehabilitation services are available to his patients. The physician should take the lead and direct the rehabilitation team if the important, traditional physician-patient relationship is to be maintained and his patients are to receive all of the benefits total rehabilitation has to offer. To assure that ancillary personnel are adequately trained to assume their responsibilities as members of the rehabilitation team, physicians should also actively participate in teaching the medical aspects of educational programs for such personnel.

Every individual physician can and should assume responsibility for the rehabilitation of his patients. Accomplishment does not depend so much upon the rehabilitation center as it does upon the mobilization, integration, and provision of rehabilitation services. The physician should ascertain what rehabilitative, community, and specialized medical services are available, and direct his patient to them as necessary. Although both federal and private national organizations are interested in rehabilitation, actual service is provided to the individual at the local level. County and state medical societies should catalogue for the benefit of their members the various medical, social, and educational agencies providing services to the rehabilitee within the state, county, and community.

The Committee believes that its activities in the development of rehabilitation should proceed with the following objectives as guides to its work: (1) to coordinate the rehabilitation interests and activities within the councils, bureaus, committees, and departments of the American Medical Association, (2) to foster medical supervision of rehabilitation services and centers, (3) to study the problems and interrelationships of the medical, social, educational, and vocational aspects of rehabilitation, (4) to inform the medical profession of the availability of information regarding rehabilitation, (5) to collect information concerning the establishment of rehabilitation programs, their organization, methods of operation, and utilization by physician and patient, and (6) to encourage medical society interest and programs in rehabilitation.

In the process of carrying out this work, the Committee believes that some of the activities in which it might engage are as follows: (1) a review of the rehabilitation programs of national organizations through a perusal of written and published material and through conferences with representatives from these organizations, (2) a preparation of guides for medical societies to use in (*a*) reviewing the rehabilitation programs of local agencies and foundations, including availability of facilities and services and the extent and type of research, (*b*) determining the need for facilities and services, and (*c*) developing liaison with local groups concerned with rehabilitation, (3) the preparation of guides for sound rehabilitation services and facilities, and (4) publication of a series of articles in The Journal of the American Medical Association on all aspects of rehabilitation. Such articles would be prepared by persons well qualified in the various aspects of rehabilitation.

Members of the Committee on Rehabilitation are Frank H. Krusen, M.D., Chairman, H. B. Mulholland, M.D., Vice-chairman, Oscar A. Sander, M.D., Francis J. Gerty, M.D., and Guy A. Caldwell, M.D.

COUNCIL ON DRUGS

Formerly the Council on Pharmacy and Chemistry

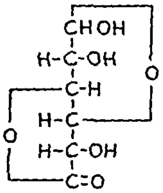
NEW AND NONOFFICIAL DRUGS

Formerly New and Nonofficial Remedies

Monographs and supplemental statements on drugs described here and in subsequent editions of New and Nonofficial Drugs are based on the evaluation of available scientific data and reports of investigations Applicable commercial names for preparations of evaluated drugs are listed at the end of monographs and parenthetically in the text of supplemental statements, additional commercial names of which the Council is informed will be included with subsequently published supplemental statements and annual editions of New and Nonofficial Drugs

H D Kautz, M D, *Secretary*

Glucurolactone—γ-Lactone of D-glucofuranuronic acid—The structural formula of glucurolactone may be represented as follows



Actions and Uses—Glucurolactone is the gamma lactone of glucuronic acid, an important body constituent that is believed to possess at least two significant metabolic functions It is an essential unit of tissue structure, comprising part of the composition of connective tissue and collagen, particularly of cartilage, periosteum, nerve sheath, joint capsule, tendon, and synovial fluid It also occurs in intercellular cement substance and in blood vessel walls Glucuronic acid is of additional metabolic importance as a detoxifying agent, combining with many foreign and deleterious substances that are then excreted in the urine as innocuous glucuronic acid conjugates

As a physiological body constituent, glucuronic acid and its more stable lactone have been considered possible therapeutic agents in several disease entities Although they were previously suggested for a variety of purposes, clinical experience has centered principally about the use of these compounds in the treatment of arthritis, rheumatism, and associated collagen diseases It has been surmised that the destruction of bone and cartilage, which characterizes these conditions, may result from a deficiency of glucuronic acid required for normal metabolism and that such deficiency may also involve the cement substance affected in the collagen diseases It has also been surmised that patients in this category may suffer from a defect in detoxicating mechanism as indicated by excessive toxicity from focal and other infections Although there is no valid evidence to support this view, glucurolactone has been proposed for use in arthritic conditions as an orally given absorbable, stable form of glucuronic acid to restore and maintain metabolic balance in fibrous tissue and to help meet daily detoxicating requirements Although some observers believe that the drug exerts a beneficial clinical effect, the number of patients in which such results have been reported is too small to permit any positive conclusion Since the presently available evidence is largely from uncontrolled studies, it is also difficult to determine whether the favorable responses thus far reported were due to the action of the drug or to spontaneous remissions so characteristic of this group of diseases Thus, while there may be some hypothetical reasons for the use of glucurolactone for the treatment of joint and collagen diseases, a definite statement regarding its usefulness must await the results of better controlled, long-term clinical studies

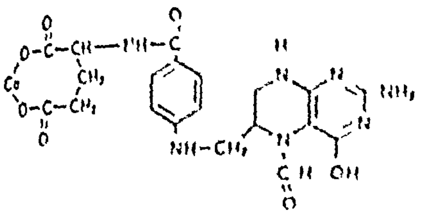
Unlike free glucuronic acid or its salts, glucurolactone is readily absorbed from the gastrointestinal tract It is apparently broken down to free glucuronic acid in the body, since detectable increases in this constituent may be found in the blood and urine after the oral administration of its lactone Both laboratory and clinical experience indicate glucurolactone to be a relatively nontoxic substance In humans, prolonged administration has not been accompanied by any manifestations of serious deleterious effects Occasionally, flushing of the face and mild gastrointestinal distress have been observed These effects usually subside with a reduction in dosage or with temporary withdrawal of the drug

Dosage—Glucurolactone is administered orally In the treatment of joint and arthritic-like conditions, the daily administration of 2 Gm of glucurolactone in four divided doses should be considered experimental If the drug is employed at all, administration for one month or more may be required before any therapeutic results are apparent Should a favorable effect be obtained, maintenance dosage and duration of subsequent therapy should be governed by individual response The trial of glucurolactone in arthritic patients does not obviate the need for more important and better established therapeutic measures

Applicable commercial name Glucurone

Reed & Carnrick cooperated by furnishing scientific data to aid in the evaluation of glucurolactone

Leucovorin Calcium—Calcium 5-formyl-5,6,7,8-tetrahydropteroylglutamate.—The structural formula of leucovorin calcium may be represented as follows



Actions and Uses—Leucovorin calcium, the calcium salt of the active metabolite of folic acid, is utilized for growth of the bacterial species Leuconostoc citrovorum. Hence leucovorin is frequently referred to as citrovorum factor or, less commonly, folinic acid. In man and animals folic acid per se is metabolically inactive; it must be converted to leucovorin in the tissues in order to exert a stimulating effect on the proliferation of all blood cellular elements. If this conversion is blocked, as with the folic acid antagonists aminopterin or A-methopterin, hematopoiesis is depressed. This is, of course, the therapeutic effect desired in the treatment of acute leukemia of childhood. However, because of extreme potency and narrow margin of safety, therapy with the folic acid antagonists can be hazardous. Hematopoietic response is sometimes very difficult to control, and even small errors in dosage can lead to irreversible bone marrow depression. In such situations leucovorin calcium exerts a potent antidotal action, since it provides an exogenous source of the active hematopoietic principle, the biosynthesis of which is blocked. There is adequate laboratory and clinical evidence to show that prompt administration of the drug after overdosage with any of the folic acid antagonists results in a reversal of both hematopoietic toxicity and the generalized toxic effect on all reticuloendothelial tissue. Whenever possible, therapy with leucovorin calcium should be initiated before susceptible cell groups have become too damaged by folic acid antagonists to be responsive to antidotal action. Hence, in cases of inadvertent overdosage, leucovorin should be administered as soon as the error is detected; if a period of more than four hours intervenes, the drug may not be effective. Leucovorin calcium should not be administered simultaneously with folic acid antagonists in an attempt to modify or abort clinical toxicity. Such a regimen may nullify completely the desired therapeutic effect. If signs of toxicity appear after use of the folic acid antagonists, the offending drug should be withdrawn immediately, and, along with general supportive measures, leucovorin calcium should be administered on a daily basis until hematological and clinical improvement is noted.

Because leucovorin calcium supplies the active metabolite needed for the proliferation and maturation of blood cellular elements, it is effective in ameliorating the blood picture in the megaloblastic anemias associated with pregnancy, infancy, sprue, and nutritional deficiency. However, the ability of the blood-forming organs to convert folic acid to the citrovorum factor is not impaired in these anemias. Accordingly, in the megaloblastic anemias, no particular purpose is accomplished by using leucovorin calcium, which must be injected parenterally, instead of folic acid, which may be taken orally.

Before the introduction of cyanocobalamin (vitamin B_{12}), leucovorin calcium was used for the treatment of pernicious anemia. The action of the drug in this condition is essentially the same as that of folic acid. Thus, while leucovorin calcium may restore to normal the blood picture in patients with pernicious anemia, it is ineffective in the control of neurological symptoms. Cyanocobalamin, which overcomes both the hematological and neurological effects of pernicious anemia, has displaced both folic acid and leucovorin calcium in the treatment of this condition.

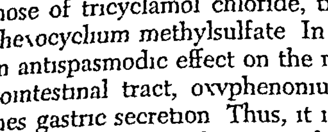
In therapeutic doses, leucovorin calcium appears to be essentially nontoxic. To date, no untoward effects or adverse reactions referable to the drug have been reported.

Dosage—Leucovorin calcium is administered intramuscularly. To counteract the toxic effects of folic acid antagonists the usual dose is 3 to 6 mg. per day. This is continued as long as signs of toxicity persist. For the treatment of megaloblastic anemias, a dose of 10 mg. may be injected daily for 10 to 15 days. Subsequent therapy and dosage is dependent upon the hematological response as reflected by both peripheral blood cell counts and bone marrow aspirations. Dosage of leucovorin calcium as an adjunct to cyanocobalamin therapy in the treatment of pernicious anemia has not been well defined, but amounts ranging from 0.2 to 15 mg. per day have been employed in this condition.

Applicable commercial name: Leucovorin.

Lederle Laboratories Division, American Cyanamid Company, cooperated by furnishing scientific data to aid in the evaluation of leucovorin calcium.

Oxyphenonium Bromide—Diethyl(2-hydroxyethyl)methylammonium bromide α-phenyl-α-cyclohexylglycolate.—The structural formula of oxyphenonium bromide may be represented as follows



Actions and Uses—Oxyphenonium bromide, a synthetic quaternary ammonium compound, is used clinically as an anticholinergic agent. Its pharmacological actions, side effects, and chemical structure are similar to those of tricyclamol chloride, tridihexethyl iodide, and hexocyclium methylsulfate. In addition to producing an antispasmodic effect on the musculature of the gastrointestinal tract, oxyphenonium bromide also diminishes gastric secretion. Thus, it is useful for the adjunctive management of peptic ulcer and for other disorders of the gastrointestinal tract, characterized by hypermotility or spasm, that are usually amenable to anticholinergic therapy. It may also be used in place of atropine or scopolamine as a p anesthetic medication in patients who are sens to the belladonna alkaloids. Currently availabl dence confirms the usefulness of oxyphenon

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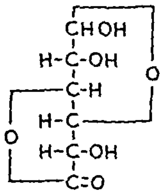

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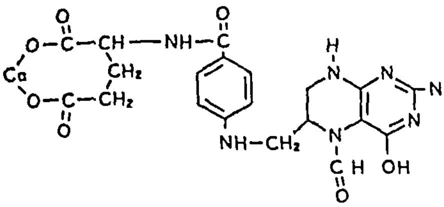

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Dosage —Leucovorin calcium is administered intramuscularly To counteract the toxic effects of folic acid antagonists, the usual dose is 3 to 6 mg per day This is continued as long as signs of toxicity persist For the treatment of megaloblastic anemias, a dose of 10 mg may be injected daily for 10 to 15 days Subsequent therapy and dosage is dependent upon the hematological response as reflected by both peripheral blood cell counts and bone marrow aspirations Dosage of leucovorin calcium as an adjunct to cyanocobalamin therapy in the treatment of pernicious anemia has not been well defined, but amounts ranging from 0 2 to 15 mg per day have been employed in this condition

Applicable commercial name Leucovorin

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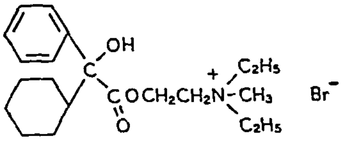


Actions and Uses —Oxyphenonium bromide, a synthetic quaternary ammonium compound, is used clinically as an anticholinergic agent Its pharmacological actions, side-effects, and chemical structure are similar to those of tricyclamol chloride, tridihexethyl iodide, and hexocyclium methylsulfate In addition to producing an antispasmodic effect on the musculature of the gastrointestinal tract, oxyphenonium bromide also diminishes gastric secretion Thus, it is useful for the adjunctive management of peptic ulcer and for other disorders of the gastrointestinal tract, characterized by hypermotility or spasm, that are usually amenable to anticholinergic therapy It may also be used in place of atropine or scopolamine as a preanesthetic medication in patients who are sensitive to the belladonna alkaloids Currently available evidence confirms the usefulness of oxyphenonium bromide as a potent antispasmodic but does not indicate any advantages that would distinguish the drug from other agents in this category

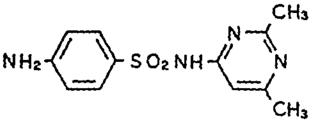
Side-effects to oxyphenonium bromide include those of the anticholinergic agents in general Blurring of vision, dryness of the mouth, difficulty in urination, and constipation may follow its clinical use Less common reactions have included weakness, dizziness, drowsiness, nausea, vomiting, headache, and tachycardia The drug is contraindicated in the presence of glaucoma, prostatic hypertrophy, and pyloric obstruction

Dosage —Oxyphenonium bromide is given orally, subcutaneously, or intramuscularly When immediate action is desired in severe gastrointestinal spasm with pain, 1 to 2 mg (0 5 to 1 cc of a 0 2% solution) may be injected subcutaneously or intramuscularly every six hours, oral therapy should then be substituted as soon as possible The usual oral dosage for adults is 10 mg four times daily Dosage should be adjusted, however, according to individual response and the appearance of side-effects For children, dosage is reduced proportionally according to age

Applicable commercial name Antrenyl Bromide

Ciba Pharmaceutical Products Inc cooperated by furnishing scientific data to aid in the evaluation of oxyphenonium bromide

Sulfisomidine —N′-(2,6-Dimethyl-4-pyrimidinyl)sulfanilamide —The structural formula of sulfisomidine may be represented as follows



Actions and Uses —Sulfisomidine, a structural isomer of sulfamethazine, is useful for the treatment of systemic and urinary tract infections caused by microorganisms that are susceptible to the bacteriostatic effects of sulfonamides In contrast to most other agents in this class, sulfisomidine is not readily acetylated in the body Thus, after oral administration, only about 5 to 10% of total blood sulfonamide is conjugated, and about 90% of the drug appears in the urine in the free form Since the free form of the drug is soluble in acid urine, sulfisomidine compares favorably with the other sulfonamides with respect to renal toxicity Hematuria and crystalluria are only rarely encountered Hence, concomitant alkalinization of the urine is not necessary to increase the solubility of the drug As with all sulfonamide therapy, however, fluid intake should be maintained above 1 5 liters daily Aside from diminished renal toxicity, the side-effects of sulfisomidine are similar to those of other sulfonamides (See the general statement on sulfonamides and on pyrimidine derivatives in New and Nonofficial Remedies)

Dosage —Sulfisomidine is administered orally The initial dose in severe infections is calculated on the basis of 0 1 Gm per kilogram of body weight Subsequent doses of one-sixth the initial dose should be given every four hours (six times a day) until the infection is well under control Then dosage is decreased to four times a day until a cure is effected

Applicable commercial name Elkosin

Ciba Pharmaceutical Products Inc cooperated by furnishing scientific data to aid in the evaluation of sulfisomidine

COUNCIL ON FOODS AND NUTRITION

Report to the Council

The Council has authorized publication of the following condensation of a report on atherosclerosis and diet which appears in the August, 1957, issue of Circulation *The report was prepared by the nutrition committee of the American Heart Association in cooperation with the Society for the Study of Arteriosclerosis*

Philip L White, Sc D , *Secretary*

ATHEROSCLEROSIS AND THE FAT CONTENT OF THE DIET

I H Page, M D , Cleveland, F J Stare, M D , Boston, A C Corcoran, M D , Cleveland, H Pollack, M D
and
C F Wilkinson Jr , M D , New York

Atherosclerosis in all probability has no single cause Among those factors presently implicated are (1) heredity, (2) diet, (3) anatomy of the blood vessel wall, (4) arterial blood pressure, (5) lipid content of the blood, and (6) sex Because atherosclerosis is a focal lesion, its consequences are widely variable There is no practical means of clinical diagnosis of uncomplicated, potentially reversible lesions The approach to this problem by animal experiments has shown that atherosclerosis which is closely similar to, but not necessarily identical with, the human type can be produced in a variety of experimental animals by dietary variations The results of such experiments have had a significant influence on the opinions of many clinicians

The clinical diagnosis of coronary arterial heart disease dates substantially from the first decade of this century No one questions the remarkable increase in the reported number of cases of this condition Undoubtedly the wide use of the electrocardiogram

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From the Division of Research, Cleveland Clinic (Drs Page and Corcoran), the Department of Nutrition, Harvard School of Public Health (Dr Stare), and the New York University Post-Graduate School of Medicine (Drs Pollack and Wilkinson)

in confirming clinical diagnosis and the inclusion, in 1949, of arteriosclerotic heart disease in the International List of Causes of Death play a role in what is often believed to be an actual increased prevalence of this disease

The incidence of coronary heart disease has been reported to be associated with certain dietary habits, for instance, with the intake of fat Comparative nutritional surveys range from estimates based on the food balance sheets of two nations to carefully measured food intakes of individuals Estimates of national food balances may indicate trends in single countries or demonstrate wide differences in the adequacy of the diets available, but they have little application to small groups or to small differences

That the genetic factor may be an influence is indicated by a recent cooperative study made by the life insurance companies For periods of up to 15 years, they investigated 18,000 insured lives and showed conclusively that persons who had reported two or more cases of early cardiovascular renal disease in their families were subject to death rates from cardiovascular disease that were one and three-fourths to two and one half times greater than prevailing rates among all persons insured at standard premium rates [1]

Clinical Approach

The clinical approach to relating lipids to atherosclerosis depends primarily upon the association of increased incidence of atherosclerosis and coronary arterial disease with certain other diseases such as diabetes, myxedema, nephrosis, and xanthromatosis, all of which are commonly associated with hyperlipemia and hypercholesteremia Experience indicates that the equation of atherosclerosis with hypercholesteremia is presumably valid, but it does not establish the association between fat intake and hypercholesteremia

Cholesterol

Many years ago the clinical association between hypercholesteremia and atherosclerosis was correlated with the finding that rabbits fed cholesterol in oil developed atherosclerosis Cholesterol, once regarded as an unmetabolizable building block in animal tissues, became to many the villain underlying arterial catastrophe Although biologically the least significant, a large factor in this association was that the Liebermann-Burchard reaction made measurement of serum cholesterol easier than measurement of other serum lipids In fact, the reaction may have concentrated too much attention on cholesterol at the expense of substances of equal or greater potential interest The concentrations of plasma lipids usually tend to vary simultaneously in the same direction, and any one of them might be as significant as cholesterol

Fat

Total Fat Intake—Perhaps the total consumption of fat is relevant to clinical atherogenesis Keys,[2] in particular, has placed emphasis on the proportion of total dietary calories contributed by the common food fats Certainly there is an abundance of data, both clinical and experimental, which tend to relate excess fat intake to atherosclerosis Unfortunately, other significant parameters such as total caloric intake, relative rate of caloric expenditure, true obesity, and exercise are not easily disentangled from the problems of excess fat intake Consequently, this hypothesis finds opposition in some quarters

Animal vs Vegetable Fat—The possibility has been raised that the kind rather than the amount of fat in the diet is responsible for atherogenesis The first area of study has been a comparison of effects of animal fats with those of vegetable fats

Some of the relevant data comes from studies of vegetarians In one study it was found that serum cholesterol levels were higher in nonvegetarians than in lacto ovo-vegetarians and true vegetarians The lowest concentrations of cholesterol were found in the true vegetarians, in spite of the fact that 35% of their total calories came from fat

The possible association between vegetarian diets and low levels of serum cholesterol is tested by the data from a study of Eskimos,[3] who have a high intake of meat and fat With a procedure that yielded a mean value of 177 mg per 100 cc of total serum cholesterol for a control group of Canadians, the mean in 27 Eskimos was found to be 141 mg (range 93 to 222) and in 6 Devon Island Eskimos 132 mg (range 116 to 158) The fats consumed were largely of marine origin and, like vegetable fat, relatively unsaturated However, tuberculosis is common among Eskimos and may account for the relative lipopenia

Unsaturated Fats—The reported effects of vegetable fats on the cholesterol content of blood may be a function of their degree of unsaturation and/or of their content of so-called essential fatty acids The parameter of saturation of fat as a significant factor in cholesteremia, and by extension, in atherosclerosis, recently has been explored in humans by Kinsell,[4] Ahrens,[5] Beveridge,[6] and Bronte-Stewart [7] Their experiments showed that relatively unsaturated fats of vegetable or marine origin tend to lower serum cholesterol levels, whereas hydrogenated vegetable fats usually, and saturated animal fats rather regularly, tend to increase serum cholesterol levels

Speculative hypotheses, like those of Sinclair [8] and Schroeder,[9] have been formulated The starting point of this type of hypothesis is that cholesterol is normally esterified with unsaturated fatty acids When these are unavailable, cholesterol esterifies with saturated fatty acids provided by the dietary fats or synthesized in the body from carbohydrate The hypothesis states that it is these saturated cholesterol esters which tend to be deposited in the arterial intima Important to this concept would be the body's inability to form arachidonic acid from linoleic acid (the so-called essential fatty acids), this latter synthesis may depend on pyridoxine Therefore, pyridoxine deficiency might have the same effect as a deficiency of unsaturated fatty acid

The fact is that the basic problem is not lipemia, hypercholesteremia, or hepatic lipid excess, but it is atheromatosis and, in particular, myocardial infarction Atheromas have not been described or associated clinically or experimentally with fatty acid deficiency With the exception of Hartroft and Thomas' [10] recent production of myocardial infarction in animals on certain dietary regimens high in fat, myocardial infarction has not been precipitated in animals by excessive intake of any particular fat or of cholesterol or by a deficiency of pyridoxine or any unsaturated fatty acid

Fat and Clotting

The hypothetical sequence in vogue, since the time of Virchow, from hypercholesteremia to increased intimal lipid deposition ending in atheroma has been questioned Duguid[11] has restated the Rokitansky concept that atheroma begins in deposition of fibrin and extends by incorporation and organization of these deposits The bridge between this view and that which associates atherogenesis with lipemia is provided by experiments which show that lipemic blood may hasten coagulation in vitro or shorten plasma clotting time induced by an incomplete thromboplastin

Proteins

Dietary proteins may also be involved in experimental atherosclerosis The production of atherosclerosis in the monkey was accomplished by means of diets containing alpha protein and was prevented when casein was the dietary protein Other studies with rats showed that the hypercholesteremic response varied according to the protein level The lowest response was observed among those animals receiving the highest level of dietary protein Since atherosclerosis in man is associated with an abundant diet, it is difficult to believe that diets low in protein or low in essential amino acids can be a causative factor

The American Diet

Has there been a marked change in the American diet during the past one or two generations—a period in which the incidence of coronary heart disease and atherosclerosis may have increased?

Katz[12] states unequivocally that the fat content of the American diet has increased To prove this point, he cites data from the Department of Agriculture going back to 1910 But these data are concerned with food estimated to be available at the retail level and are really no true measure of the actual food consumed The tremendous fat collections from kitchens during the war years are an indication of the degree of the loss

The second method of estimating food consumption is the dietary survey Many studies ranging from approximately 1900 to the present day show a considerable variation in dietary intake, depending on the group and area under scrutiny However, variation with time is not very striking

It is true that the use of hydrogenated fats has increased Thirty years ago these processed fats were relatively new products However, the proportion of animal and vegetable fats in the diet has remained relatively constant It might be pointed out that an increase in the consumption of hydrogenated fats during the past 25 to 30 years does not necessarily mean a decrease in the intake of the so-called essential fatty acids The following are reasons for this

1 Although the use of hydrogenated vegetable oils has increased over the past several years, so too has the use of these same oils in their natural state This latter use represents a substantial contribution of "essential" unsaturated fatty acids

2 Gross measurements of changes of saturation induced by hydrogenation do not necessarily indicate the degree of change in the content of biologically active linoleic and linolenic acids During hydrogenation the content of normal linoleate of an oil, while reduced, is not abolished

McCann and Trulson[13] have recently estimated the intake of "essential" fatty acids in current and past American diets and comment as follows "However, there has been no marked change in the total amount of essential unsaturated fatty acids in the American diet over the past half century The increased saturation of fats induced by the hydrogenation of shortenings and margarines has been balanced by an increased consumption of 'other fats and oils,' fats which are mostly unsaturated and have a high content of essential fatty acids "

General Comment

One can summarize the hypotheses presented as follows 1 Diet may play an important role in the pathogenesis of atherosclerosis 2 The fat content and the total calories in the diet are probably important factors 3 The type of fat, rather than the total fat or the ration or balance between the saturated and certain unsaturated fats, may be the basic determinant 4 The proposition that the character of the American diet has so changed during the past 50 years as to increase the incidence of coronary vascular disease has not been supported 5 Other aspects of fat metabolism may be determinants 6 A wide variety of other factors, dietary and nondietary, may be of equal or greater importance 7 Myocardial infarction, the real crux of the problem, has been only recently, and, on a complicated dietary regimen, produced experimentally, despite the extensive and severe atherosclerosis that has been produced

It should be realized that these conclusions are subject to some very basic criticisms One is that most of the studies have focused attention on the concentrations of serum cholesterol, serum lipid, or serum lipoprotein without proper emphasis on the focus of the problem, which is atheroma and infarction Is there compelling evidence that, if we treat to adjust the serum cholesterol concentration, we are doing anything to lessen the chances of coronary infarction? Perhaps the best that can be said is that there is an association which has statistical value but that it is not an obligatory association either in small groups or, much less, in an individual

Even if one accepts the equation that hypercholesteremia leads to atherosclerosis (or some variant thereof), the fact is that serum lipid concentrations (perhaps more in some people than in others) show considerable "spontaneous" fluctuations which makes the application of the formula difficult Variations of serum lipid concentrations among individuals of the same sex and age who consume similar diets are also great Consequently, data based on single determinations are potentially highly inaccurate, and control data by repeated observation on standard regimens should be secured over several weeks

Vital statistics, particularly those from countries with different methods of reporting, understaffed health departments, and low autopsy rates are very apt to be misleading The diagnostic accuracy of all physicians is not equal, and standards vary from place to place Diet histories are time-consuming and, at best, yield data which are only moderately accurate When data are obtained through interpreters and when good rapport has not been possible, they lose even this limited value A national diet, low in fat, is usually also low in sucrose and animal protein, it is usually high in fiber and starch, and the vitamin and mineral content may differ from American diets

Finally, there are other common factors in human life which are atherogenic but are not related to lipemia Of these, the most common and best documented is arterial hypertension This association is well recognized The greatest frequency of complications of atherosclerosis, fatal and nonfatal, was found in a group of patients whose severe hypertensive disease had been brought under some control with antipressor drugs Among these persons, such complications occurred three times as often in those with high diastolic pressures (greater than 110 mm Hg) as in those with lower average pressure In the severely hypertensive patients, there was no demonstrable association between the incidence of these complications and the levels of serum cholesterol or of the light or dense lipoprotein fractions

Conclusions

Atherosclerosis and myocardial infarction are diseases in which numerous factors are involved, including diet Diet and nutrition are important factors in experimental atherosclerosis and, very probably, in the human form of the disease Thrombosis and infarction are probably more likely to occur in arteries severely sclerosed

The evidence at hand suggests a general association with high rates of consumption of fat, but it is difficult to disentangle this from caloric balance, exercise, changes in body weight, and other metabolic and dietary factors that may be involved Thus, the present evidence does not convey any specific implications for drastic dietary change, specifically in the quantity or type of fat in the diet of the general population, on the premise that such changes will definitely lessen the incidence of coronary artery disease On the other hand, the fact that obesity is a nutritional failure caused by consuming more calories than one expends and the fact that dietary fats are the most concentrated source of calories, providing some 40 to 45% of the daily caloric intake, suggests that many persons should consume fewer calories For most, this will mean eating less fat

Prudence, as well as habit and taste, will dictate the selection of a diet containing some fat Diets providing 25 to 30% of the calories from fat, rather than the current 40 to 45% in the American diet, can still provide palatable meals for our accustomed tastes

The key points of nutritional common sense for better health generally, and most likely in regard to atherosclerosis specifically, consist of a balanced, varied diet which adjusts total calories to reach or maintain a desirable weight, and which provides less fat, more protein from lean meat, fish, poultry, and cereals, and a reasonable selection of fruits and vegetables, as well as animal foods

The aforementioned conclusions obviously apply to the general population and not to patients or to individuals with a family history of early deaths from cardiovascular disease nor to those who are being followed up with some regularity by their physician The newer concepts of nutrition readily suggest various types of diet therapy which may prove useful to certain patients Investigative procedures of this type, together with continued basic research, will, in time, provide the facts upon which dietary recommendations may in the future be made to the public at large and which may help in lessening the prevalence of coronary thrombosis

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REVIVING THE SURVIVORS

Each year an estimated 250,000 Americans become sufficiently disabled to require rehabilitation services Along with our increased population and longevity, we see more congenital malformations, more chronic illnesses, and more crippling conditions from accidents Yet there are at least two million physically handicapped adults who could be rehabilitated to the point of gainful employment

That picture presents a staggering view of the future Unless something is done about using the disabled, in the next generation there will be a drag of one chronically ill person, one physically handicapped person, or one unproductive oldster economically saddled upon every American worker who is able-bodied Such a prospect creates a high priority challenge to management, labor, and government—to every thinking citizen—because it foreshadows a socioeconomic crisis of first magnitude It is an even sharper challenge to the medical community, because no amount of big spending or good intentions can enable the disabled to be useful and happy again unless comprehensive medical action and planning is called into play with the efforts of interested lay groups and individuals

It is precisely because rehabilitation demands such universal concern—the concern of all physicians—that the American Medical Association's Board of Trustees last year established a committee drawn from five A M A Councils Industrial Health, Mental Health, Medical Physics, Medical Service, and Medical Education and Hospitals This Committee on Rehabilitation is presenting its first report on page 2045 of this issue of THE JOURNAL It emphasizes that "every individual physician can and should assume responsibility for the rehabilitation of his patients' by directing them to the proper specialized medical and other services in the community This, in turn, offers county medical societies the opportunity to perform another service for their members Listing of the various medical, social, and educational agencies which provide help to the disabled person within the community

The A M A committee sees rehabilitation as a total problem requiring total participation of our culture's diverse forces, including medicine, education, and sociology But in this concept of totality, the committee goes on to say, 'the physician should take the lead and direct the rehabilitation team if the important, traditional physician-patient relationship is to be maintained and his patients are to receive all the benefits total rehabilitation has to offer"

Indeed, there are great benefits, as evidenced by effective rehabilitation programs carried on by some universities, businesses, foundations, and other institutions—all via medical direction The University of Minnesota's Rehabilitation Center, for example, uses the resources of several hospitals, the graduate medical school, research laboratories, and Minneapolis-area industry to return, little by little in a comprehensively planned program, the disabled to self-sufficiency in outlook, home life, and employment Each new activity, mastered with medical supervision, becomes a part of the patient's much-needed independence when he is ready to go home

Success also is being achieved by the Liberty Mutual Insurance Company in a cooperative hospital service and two rehabilitation centers in Chicago and Boston Under the totality concept of rehabilitation, every patient receives the benefit of correct medical diagnosis, early treatment, steady care by a team of rehabilitation experts, and follow-up help by vocational training specialists The insurance company reported 'Costs of rehabilitation are more than matched by the dollar savings achieved [Our] philosophy is to go beyond treatment of the disability itself, to draw upon all of modern medicine's vast resources to the point of seeing the patient not only healed but fully functioning in our society"

In Peoria, Ill, the Institute of Physical Medicine and Rehabilitation functions in two hospitals, where medical care, social service, speech therapy, psychological testing, and job placement are combined in facilities which formerly were available only in scattered big city locations

Such a grasp of the nation's rehabilitation problem—an understanding, to begin with, that it is a many-faceted problem best solved in the home community—is being made elsewhere in the United States Exercised extensively with proper medical initiative, this grasp can help turn an enormously wasteful liability into a total asset It can enable our disabled not merely to survive but to revive

A study of disabled individuals rehabilitated through rehabilitation programs reveals that 80 to 85% of the rehabilitants continue to work, are in the same or a better job, and increase their earnings just as other workers do Studies also have shown that handicapped workers are adaptable, productive, careful, regular, reliable, and capable This pool of talent would go far to meet the increasing demands for skilled and unskilled employees in American industry In addition, it would mean savings in public assistance payments of hundreds of millions of dollars Considering that it is now costing the public more than 500 million dollars annually to provide maintenance and medical care for the disabled through public assistance programs, this item is not insignificant for the taxpayer Perhaps of greater importance, however, is the role which the rehabilitated person can assume as a public-spirited citizen and as a happy employee

THE PRESIDENT'S PAGE

A MONTHLY MESSAGE

Two disturbing suggestions that could cloud the future of voluntary health insurance in the United States are getting strong support They are the proposed Social Security amendment to provide 60 days of free hospitalization for beneficiaries 65 years of age and over and the insistence of certain labor groups on comprehensive coverage which will pay all medical care bills

Already the American Medical Association is on record as actively opposed to the 60 day-hospitalization amendment Like other recent Social Security amendments, the latest proposal is another in a line of piecemeal steps toward government control of medicine Although proclaimed as a measure to solve the hospitalization problem for older folks, it is actually a political move to capture votes—quite naturally planned for 1958, a congressional election year

I admit there is a problem of finding ways to provide voluntary health insurance for persons over 65 Although thousands who reach age 65 may continue as members of medical care plans, some plans arbitrarily drop older persons from the rolls and others reduce their benefits Too, a few plans often refuse enrollment to older people Efforts, however, are being made to resolve the issue I believe there are some promising experiments in progress For example, medical societies and others are testing "over 65' contracts and preretirement financing of health insurance for insured persons

Even though there are 118 million Americans covered by some form of voluntary health insurance and 25% of the medical bills are paid from health insurance funds, we know new plans can be devised to cover more Americans and to offer needed benefits The various experiments now in progress are testimony to the desire of medicine and its allies to provide the best possible plans for the individual

We are close to some excellent solutions to the problem of voluntary health insurance for the retired However, these plans could be nullified by a government scheme of 60 days free hospitalization If they are, the whole structure of voluntary health insurance will be weakened and, I believe, will be in danger of being 'gobbled up" by new and greater extensions of the government into the health insurance field

The other suggestion that could do irreparable damage to, or perhaps destroy, voluntary health insurance is the insistence by some labor unions on full payment for complete medical care on an insurance basis It is folly to think that insurance plans could pay all bills for all medical care of every insured individual Health insurance was never meant to relieve the insured person from any individual responsibility for financing his health care costs It was meant to improve his ability to pay for medical care needed

Under the suggested full-payment scheme there would be no built-in controls on utilization, for the insured person would have no real interest in the bills he contracted Consequently, the demand for benefits would be uncontrollable and costs would be infinite It is my opinion that no one must expect of insurance those goals which are unrealistic And full payment for all medical bills is unrealistic

Thus, I believe that the 60-day-free-hospitalization plan and the full-payment plan for all medical bills are undesirable proposals They do not provide reasonable financing mechanisms for paying for health care costs In the government proposal the financing mechanism is a direct step toward the socialization of our economy

In the labor suggestion the demands are so great as to make voluntary health insurance economically unsound Thus, voluntary health insurance would appear undesirable or unequal to the task, and the idea of complete government control of all health insurance thereby fostered

Medicine has a duty to oppose such unsound schemes It has the great responsibilty of experimenting and encouraging as broad a coverage as possible within the limits of actuarial soundness It also has the job of resisting demands of patients for unnecessary hospitalization and treatment

No one is in a better position than the doctor to help the cause of voluntary health insurance, and to promote better medical attention for more Americans while maintaining a free medical profession If we fail to grasp this opportunity we will do the insurance industry, our patients, and our profession a serious disservice

DAVID B ALLMAN, M D, Atlantic City, N J

ORGANIZATION SECTION

FEDERAL MEDICAL LEGISLATION

First Session, 85th Congress

Public Health Training and Services

Senator Humphrey (D., Minn.), in S. 2304, would amend the Public Health Service Act to provide an emergency five-year program of grants and scholarships for post-graduate education in the field of public health." He would authorize the appropriation of 1 million dollars annually, for five years, for subsidies to maintain and increase enrollments in schools of public health. A school could receive 15% of the basic operating costs of graduate instruction plus $500 for each full-time student in excess of the average past enrollment, plus $500 for each student enrolled in excess of 30 students. He would authorize also the appropriation of 1 million dollars for five years for construction and equipment of schools of public health, but grants could not exceed 50% of the total cost. The bill also contains an authorization for $250,000 annually for scholarships for a period of six years. This bill was referred to the Committee on Labor and Public Welfare.

Representative Rhodes (D., Pa.), in H. R. 6771, proposes to earmark, from funds already authorized, "an amount, not to exceed $1,000,000, to enable the Surgeon General to make grants-in-aid, under such terms and conditions as may be prescribed by regulations, for the support of public or nonprofit educational institutions which provide comprehensive professional training, specialized consultative services, and technical assistance in the fields of public health and in the administration of State and local public health programs." This measure was referred to the Interstate and Foreign Commerce Committee.

Grades of Major General and Brigadier General in the Medical Corps

Representative Durham (D., N. C.) has introduced, in H. R. 6801, a measure which would authorize the appointment of general officers in the Medical Service Corps, one of whom would be the chief of the Medical Service Corps, with the rank of major general. The appointment of two other major generals and two brigadier generals would also be authorized. This bill was referred to the Committee on Armed Services.

Federal Aid for Medical Schools and Research

Senator Smith (R., N. J.), for himself and Senator Purtell (R., Conn.), in S. 1917, and Representatives Harris (R., Ark.), in H. R. 6874, and Wolverton (R., N. J.), in H. R. 6875, have introduced identical measures which would amend the administration bill for authorizations of federal funds for five years to aid in the construction of medical school facilities. The bill would also extend the federal aid program for construction of research facilities two additional years. Thus, the two programs would terminate at the same time. They would authorize the appropriation of a total of 225 million dollars over the five-year period. Up to 30 million dollars of this would be used for the construction of dental teaching and research facilities.

Grants under this measure would not be given if the building were to be a hospital, diagnostic or treatment center, rehabilitation facility, or nursing home, as defined in the Hill-Burton act. However, schools of osteopathy or public health would be eligible for grants in the same manner as schools of medicine and dentistry. The measure specifically states that neither the federal government nor any of its officials shall interfere with the personnel, curriculum, methods of instruction, or administration of any institution. A National Advisory Council established under the Health Research Facilities law would be advisory to the federal government in the combined program. The House measures were referred to the Interstate and Foreign Commerce Committee. The Senate measure was referred to the Labor and Public Welfare Committee.

Senators Hill (D., Ala.), Kennedy (D., Mass.), Neely (D., W. Va.), Humphrey (D., Minn.), and Smathers (D., Fla.), have introduced, in S. 1922, a bill "to authorize a five-year program of grants for construction of medical and dental educational and research facilities." They would authorize the appropriation of 60 million dollars annually with 52 million a year marked for medical schools and 8 million for dental schools. The federal contribution toward construction could not exceed 50%, except in the case of existing schools which agree to increase the freshman enrollment 5% over the 1956-1957 freshman enrollment. In this case the federal grants could equal 66.6% for the cost of construction as for new schools. Schools of osteopathy would also be eligible for such grants.

No grant or grants could be made to any one medical school in excess of 3 million dollars or in excess of 1 million dollars for any one dental school. Up to 20% of the amount of any grant for any construction could, at the discretion of the applicant, be allocated to permanent endowment for maintenance of the new facility. The bill provides for a Federal Council for Medical and Dental Educational Facilities to assist the surgeon general. This measure was referred to the Committee on Labor and Public Welfare.

Representative Fogarty (D., R. I.) has introduced a similar bill, in H. R. 7841, except that the bill would authorize 45 million dollars annually for medical schools, 7 million for public health schools, and 8 million for dental schools and would limit the federal

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From the Washington Office of the American Medical Association.

grants to 3 million dollars for any one medical school, 1 million dollars for a public health school, and 1 million dollars for a dental school This measure was referred to the Interstate and Foreign Commerce Committee

Trustees for Welfare Funds

Senator Goldwater (R , Ariz) proposes, in S 1813, to amend the National Labor Relations act to require the appointment of three trustees for welfare funds for workers One trustee would be named by the employer and one by the employees A third trustee would be appointed by the United States district court judge for the district where the fund has its principal office An audit would have to be made by a certified public accountant and filed with the Securities Exchange Commission and would also have to be open to public inspection No officer or employee or member of the fund could borrow from the fund nor share in any commission or brokerage fee paid for insurance The employer could make payments to a welfare fund of his employees only after he had received from each employee, on whose account deductions are to be made, a written assignment effective for not more than one year or the period of an applicable collective bargaining agreement This measure was referred to the Committee on Labor and Public Welfare

Presumption of Service Connection for Convulsions and Meningitis

Representative Granahan (D , Pa), in H R 6984, proposes to amend the Veterans Regulations to provide that idiopathic convulsive seizures manifesting a 10 per centum degree of disability or more within six months from the date of separation from active service shall be conclusively presumed to have been incurred in or aggravated by active service "

Representative Teague (D , Texas), in H R 7573, would provide 'that meningitis developing a 10 per centum or more degree of disability within one year after separation from active service shall be presumed to be service connected ' Both measures were referred to the Veterans Affairs Committee

Water Pollution Control Act Amendments

Representative Hiestand (R , Calif), in H R 7156, has introduced a bill to amend the Water Pollution Control Act to repeal (1) that section which authorizes the federal government to make available 3 million dollars in grants to states for establishing and maintaining adequate measures for the prevention and control of water pollution, and (2) that section under which the federal government would be authorized to make grants for water treatment plants up to a total of 500 million dollars over a period of 10 years This measure was referred to the Committee on Public Works

Federal Advisory Council on Health

Representative Wainwright (R , N Y), in H R 7171, and Senator Smith (R , N J), in S 2293, have introduced similar measures based upon the recommendations of the Commission on Organization of the Executive Branch of the Government These measures would establish a Federal Advisory Council on Health "to evaluate and advise on reorganizing the conduct of the several medical programs in respects necessary to achieve a maximum of economy and to eliminate duplications of efforts and competition among the several departments and agencies " The House measure was referred to the Interstate and Foreign Commerce Committee and the Senate bill to the Committee on Labor and Public Welfare

Health Insurance for Civilian Federal Employees

Representative O'Hara (D , Ill) has introduced, in H R 7581, an identical measure to that of Representative Lesinski (D , Mich), H R 753, and Representative Shelley (D , Calif), H R 4700, previously reported These bills would provide for withholding 50% of the cost of health insurance from the employee's salary The federal government would contribute 50% of the cost The government contribution would cease when the employee s salary payments cease However, if an employee retires on an annuity with 15 years or more of service, or is retired for disability, the federal government would pay the total cost of the plans An advisory board of federal employees or employee representatives would advise the chairman of the Civil Service Commission of the administration on the proposed law This bill was referred to the Committee on Post Office and Civil Service

Senator Scott (D , N C) has introduced, in S 2357, a bill identical to H R 7034, by Representative Holifield (D , Calif), previously reported This bill was drafted by the American Hospital Association The cost of health insurance would be borne by the employees and by the government for both basic and major medical coverage Coverage would be voluntary on the part of the employees The employees share would be paid through payroll deductions The contribution of the federal government could not exceed $1 biweekly for an employee, or $2 50 biweekly for the employee and his dependents The types of insurance from which the employee could choose would be (1) a plan for basic health benefits on a service basis and, if elected, major medical benefits as well through the same carrier, (2) basic benefits on an indemnity basis and, if elected, major medical as well, (3) a group plan of hospital, surgical, or medical benefits or any combination of such services provided by a national association of federal employees, (4) a group practice prepayment plan approved by the Civil Service Commission Employees retired after Dec 31, 1957, receiving an annuity could enroll in the plan at the same charge as other employees in their locality Survivors of the employees could also elect coverage at the same rates This bill was referred to the Post Office and Civil Service Committee

Senator Johnston (D , S C), for himself, and Senator Carlson (R , Kan), in S 2339, and Representative Rees (R , Kan), in H R 8299, have introduced the administration's bill to "provide federal contributions and authorize payroll deductions for prepaid health insurance for federal employees and their dependents" The insurance program would be a voluntary one with payroll deductions but employees must take both basic coverage and catastrophic or major medical coverage The basic health insurance plan must (1) offer coverage at group rates, (2) must not discriminate because of race, sex, or hazardous employment, (3) must accept enrollment regardless of age, or physical condition, (4) must not object to the federal employee being transferred from one agency to another, (5) must agree that an employee or his dependents shall have the right to continue coverage upon separation or retirement of the employee at rates not in excess of similar plans, (6) must furnish the employee a policy or certificate, (7) must not reduce benefits or increase premiums because of age, (8) must not exclude payment of benefits for preexisting physical conditions, except pregnancy existing on the effective date of coverage

The major medical insurance would pay 75% of covered hospital expenses after the first 70 days of hospitalization (the basic plan presumably would cover the first 70 days) Benefits would also include 75% of medical costs not covered by the basic plan after a $100 deductible payment by the employee Benefits under major medical coverage would be limited to $5,000 in any one calendar year and $10,000 in a lifetime Federal employees 65 years of age and retired employees could continue their major medical insurance plans with or without basic health insurance, and the federal government would continue making contributions toward the major medical insurance but not the cost of basic coverage after retirement The government contribution for basic health insurance would be one-third of the premium up to 50 cents biweekly for the employee or $1 50 for the employee and one or more dependents For major medical coverage the government would contribute one-third or 12½ cents biweekly for single employees and 37½ cents for employees with dependents Both measures were referred to the Post Office and Civil Service Committee

Tax Deferment for Self-Employed

Representative Latham (R, N Y), in H R 7675, proposes to amend the Internal Revenue Code so that taxpayers may deduct from adjusted gross income in calculating income tax the cost of retirement plans up to a maximum of 5% of such income or $3,000 annually, whichever is less Employed persons who are covered under a pension or profit-sharing plan could deduct only 2 5% of earned adjusted income or $3,000 annually, whichever is less More liberal deductions are permitted for persons between 50 and 70 years of age Payments from the retirement fund could not be collected until the taxpayer attains 65 years of age or unless he becomes totally and permanently disabled prior to such age

Representatives Dooley (R, N Y), in H R 7868, Hemphill (D, S C), in H R 7874, and Flood (D, Pa) have introduced measures identical to H R 9 by Jenkins (R, Ohio) and H R 10 by Keogh (D, N Y), previously reported These would permit the self-employed taxpayer to deduct from his adjusted gross income on account of retirement plan costs a maximum of 10% of his net earnings or $5,000 annually, whichever is less, and could not exceed $100,000 during a taxpayer's lifetime Between 50 and 70 years of age, an additional 10% could be deducted for each year over 50 Periodic payments made to the taxpayer from the fund after 65 years of age would be treated as ordinary income for tax purposes For earlier take down or surrender for cash, an adjusted tax would be paid All these measures were referred to the Ways and Means Committee

Public Assistance Amendments

Representatives McGovern (D, S D), in H R 7703, O'Hara (D, Ill), in H R 7879, and Bowler (D, Ill), in H R 7951, have introduced measures identical to a series of bills previously reported, amending the public assistance provisions of the Social Security Act to make more uniform state laws regarding standards of qualification for applicants and recipients of federal-state public assistance The changes in the present law would be (1) make the age requirements for old-age assistance recipients the same as that established for old-age beneficiaries of the social security "insurance" system, i e, 62 years for women and 65 years for men, (2) allow aged and handicapped recipients to earn up to $50 per month and still draw maximum assistance benefits, (3) parents of needy children could earn up to $30 as could needy children (blind recipients are already permitted to earn $50 per month without penalty of reduction in assistance aid), (4) real property up to $5,000 could be owned without loss of assistance aid, nor would ownership of personal effects up to $1,200 and household furnishings and insurance policies up to $500 of value diminish assistance payments, (5) names of public assistance recipients would be held confidential, (6) residence requirements could not be imposed on any public assistance applicant providing he lived in the state for as long as one year All the above measures were referred to the Ways and Means Committee

Hill Burton Hospital Construction

Representative Anderson (D, Mont) proposes, in H R 8053, to authorize funds which are available for construction of Indian health facilities to be used to assist in the construction of community hospitals, which are defined to include diagnostic or treatment centers, and which also will serve Indians and non-Indians The surgeon general of the Public Health Service could furnish federal funds for construction of that portion of a community health facility devoted to the care of Indians The project sponsor would be required to furnish its normal share as under the Hill-Burton program for that portion of the hospital or diagnostic or treatment center not devoted to the care of Indians A diagnostic or treatment center is defined as "a facility for the diagnosis or diagnosis and treatment of ambulatory patients—(1) which is operated in connection with a hospital, or (2) in which patient care is under the professional supervision of persons licensed to practice medicine or surgery in the State, or, in the case of dental diagnosis or treatment, under the professional supervision of persons licensed to practice dentistry in the State"

This bill was written in the Department of Health, Education, and Welfare It was referred to the Interstate and Foreign Commerce Committee and promptly reported out favorably and passed by the House of Representatives

Representative Knutson (D , Minn) has introduced, in H R 7741, a measure which would extend the Hospital Survey and Construction Act, for three additional years through June 30, 1962 This bill is identical to S 1487 by Senator Humphrey (D , Minn), previously reported This measure was referred to the Interstate and Foreign Commerce Committee

Representative Neal (R , W Va), in H R 8026, would continue to make available funds for surveys and planning under the amended Hill-Burton Hospital Construction Act This is to apply to the 1954 amendment authorizing grants for diagnostic or treatment centers, hospitals for the chronically ill, rehabilitation facilities, and nursing homes Under the Neal bill they would be allowed two additional years through June 30, 1959, to utilize the funds allotted to the states for such surveys and planning The extension which was sought by this bill was accepted in part with the enactment of the appropriation bill for the Department of Health, Education, and Welfare The provision in the appropriation act, however, extended authorization for the states to utilize allocated but unspent funds until June 30, 1958 This measure was referred to the Committee on Appropriations

Agency for the Handicapped

Representative Diggs (D , Mich), in H R 7799, has introduced a measure which would establish a Federal Agency for the Handicapped to which would be transferred all the present functions of the Office of Vocational Rehabilitation from the Department of Health, Education, and Welfare and several of the functions of the Department of Labor He would establish also a Division for the Handicapped in the United States Civil Service Commission to give assistance to handicapped persons in procuring federal employment, and would establish in the Department of Labor a Committee for the Training and Development of Placement Personnel This bill was referred to the Committee on Education and Labor

Social Security

Public Assistance for All Needy Persons —Representative Forand (D , R I), in H R 7831, would amend the Social Security Act to provide public assistance in the form of money payments or medical care to all needy persons The federal share would not be more than 80% of the total expenditures, depending upon the wealth, per capita, of each state The secretary of the Department of Health, Education, and Welfare would be authorized to establish within the Social Security Administration an Office of Public Welfare to administer the program

Disability Benefits for Widows at Age 50 —Representative Shelley (D , Calif), in H R 7834, would amend the Social Security Act to provide a widows' insurance benefits to a disabled widow 50 years of age instead of 62 years as is now provided in this law These measures were referred to the Committee on Ways and Means

Lobbying Act Amendment

Senator McClellan (D , Ark), for himself and Senators Bridges (R , N H), Anderson (D , N Mex), Purtell (R , Conn), Gore (D , Tenn), Thye (R , Minn), Kennedy (D , Mass), and Goldwater (R , Ariz), has introduced, in S 2191, a measure to amend the Legislative Reorganization Act of 1946, which requires the registration of lobbyists The administration of the act would be by the comptroller general of the United States, who would receive the registrations and police activities of lobbyists and report violations to the United States Attorney General The legislative persons subject to the Act are (*a*) legislative agents, (*b*) employers of legislative agents, and (*c*) persons or organizations who write to more than 1,000 persons asking them to communicate with Congress or make expenditures exceeding $50,000 in a year in presenting a program to the public, part of which is calculated to influence legislation A legislative agent is defined as any person who, for any consideration, is employed or retained to influence legislation, in person or through any other person, by means of direct communication The employer of a legislative agency who spends $300 or more in any calendar quarter to influence legislation must also register This measure was referred to the Committee on Government Operations

Representative Hyde (R , Md), in H R 8346, has introduced a similar measure but it would broaden the term lobbying to include communication with officers and employees of Congress, as well as members of Congress This measure was referred to the Judiciary Committee

Vocational Rehabilitation Act Amendment

Senator Magnuson (D , Wash), in S 2254, and Representative Wright (D , Texas), in H R 8429, proposes to extend the authority for grants to states and public and nonprofit organizations and agencies for planning, preparing, and initiating a substantial nationwide expansion of vocational rehabilitation programs in the states This authority was to end June 30, 1957, under the existing law Representative Wright would extend it to June 30, 1958, and Senator Magnuson would extend it indefinitely The House measure was referred to the Committee on Education and Labor and the Senate bill was referred to the Labor and Public Welfare Committee

Tax Deductions

For Rest Home Care—Representative Ashley (D, Ohio), in H R 8093, has introduced measure identical to S 1275, introduced by Senators Murray and Mansfield, (D, Mont), previously reported They would allow *in computing the income tax deduction from the* adjusted gross income of "amounts paid for the institutional care of a disabled person to be deducted as medical expenses The term 'medical care' also means amounts paid to an institution for the care (including board and lodging) and supervision of an individual who is disabled and who is in such institution because of his need for continual personal attention For purposes of this paragraph, an individual shall be considered to be disabled only if he is unable to engage in any substantially gainful activity by reason of age or of any medically determinable physical or mental impairment which can be expected to be of indefinite or long-continued duration"

Medical Expense Deduction—Representative Wharton (R, N Y), in H R 8253, would amend the Internal Revenue Code 'to remove the existing maximum limitations on the amount of the deduction for medical expenses" and would permit the deduction of all medical expenses over 3% of the adjusted gross income in calculating income tax Both measures were referred to the Ways and Means Committee

Food Additives

Representative Teller (D, N Y), by H Res 273, would establish a select committee of 10 members of the House of Representatives "to conduct a full and complete investigation and study of the use of chemicals and other additives in food, medicine, and beverages, with a view to ascertaining what deleterious effects such chemicals and additives have on human life and health' This bill was referred to the Rules Committee

Representative Harris (D, Ark), in H R 8390, would amend 'the federal Food, Drug, and Cosmetic Act to prohibit the use in food of additives which have not been adequately tested to establish their safety The pretesting data on such additives must have been fully submitted to the Secretary" for evaluation before the additive could be used The use of the additive could then be stopped by court injunction

Representative Miller (R, Neb) has introduced a similar measure, in H R 8112 Both measures were referred to the Interstate and Foreign Commerce Committee

Longshoremen and Harbor Workers' Compensation Act Amendment

Senator Magnuson (D, Wash) in S 2400, would 'amend the Longshoremen's and Harbor Workers' Compensation Act, so as to provide that an injured employee shall have the right to select his own physician' This amendment is identical to H R 7303, introduced by Representative Roosevelt (D, Calif), and reported previously in detail The injured employee could select the physician and hospital of his choice However, if the employer believed that the care being rendered is not adequate, an application could be filed with the commissioner to obtain an order authorizing treatment by another physician The employer could have the claimant examined by a physician of the employer's choice This measure was referred to the Committee on Labor and Public Welfare

Treaties and International Agreements

Representative Mason (R, Ill), in H J Res 375, proposes an amendment to the Constitution relating the legal effect of treaties and international agreements The essential provisions are 'that no treaty shall have greater effect within the United States than if it were a law of the United States, and any international agreement, other than a treaty, shall have effect within the United States only to the extent provided by a law of the United States"

Executive agreements to become effective as domestic law would have to be implemented by a law passed by both branches of Congress This bill was referred to the Judiciary Committee

JOURNAL INDEX

The index to volume 164 of The Journal will appear in the Sept 14 issue Those who wish extra copies of the index may receive them, without charge, on request to the Order Department, American Medical Association, 535 N Dearborn St, Chicago 10

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

NOTES FROM THE COUNCIL

Election of Officers

Dr Leland S McKittrick was elected Chairman of the Council to succeed Dr H G Weiskotten, who retired Dr James M Faulkner was elected Vice-chairman

Newly Approved Four-Year Medical Schools

During the course of the academic year 1956-1957, the medical schools of the universities of Mississippi, Missouri, and Saskatchewan initiated full four-year educational programs Survey of these institutions by the Council on Medical Education and Hospitals and the Association of American Medical Colleges resulted in their being granted approval All three schools had previously offered and been approved for two-year programs in the basic medical sciences

COUNCIL ON MEDICAL SERVICE

STRESS AND EXHAUSTION

Edward L Bortz, M D, Philadelphia

This is the second of a series of papers on various aspects of aging Each paper has been prepared for the Committee on Aging by an authority in the field When completed, the series will be published in booklet form

Resistance to disease becomes progressively less with increasing age Older individuals are killed by diseases which would not have destroyed them when they were young It has been stated by Alex Comfort that, had we throughout life the same resistance to stress and disease as we had at the age of 10, about half of us might expect to live approximately 700 years The object of studying the changes that occur with aging is to find out why they occur and what can be done about them

Many of the changes which take place in the body and nervous system are susceptible of reasonably exact measurement There is dispersion of energy with the passage of time This results in structural and functional alterations which are the measure of rate of aging When a tissue retains its ability to maintain optimum structure for function, the rate of physiological aging may be kept at a minimum As toxic agents and adverse environmental influences bring about a lessening of the vitality of the tissues, the rate of aging is accelerated

The aphorism "adapt or perish" emphasizes Hans Selye's suggestion that adaptability is the most distinctive characteristic of human existence Adaptation to stress is a gradual building up of resistance of the tissues to adverse factors Loss of ability to adapt is an indication of aging There are exquisite mechanisms within the body whereby it is able to neutralize the various shocks It can adapt to a wide variety of conditions Under a normal healthy state of affairs, a minimum of wear and tear and deterioration of body tissues and function occurs Insofar as an organ has adequate reserve, it can withstand ordinary assaults which would dissipate that reserve Following the recovery period in the adaptive process, the body reserve returns to normal

Selye[1] reviews, in a recent article, the various concepts bearing on the syndrome which he identifies as the stress syndrome He defines stress as a state manifested by a specific syndrome which consists of all the nonspecifically induced changes within the body The stress syndrome has a specific form even though it is nonspecifically induced The syndrome affects the whole body while the local stress syndrome influences several units within a part However, stress always manifests itself by a syndrome, that is, by the sum of the changes and not by any one particular change It is essential to understand that a specific stimulus acting only on one organ usually causes a less marked stress response than a nonspecific agent which acts in many parts of the body For example Selye points out that exhaustive stimulation or even complete destruction of a limited cell group is much less effective in causing a corticotropin (ACTH) discharge than is a moderate stimulation of a more extensive area The magnitude of the stress manifestation, that is, the corticotropin discharge, appears to depend upon the sum of all the reactions which occur in the body at any one time There must be a common pathway somewhere in response to stress These facts are important in understanding the reaction to long-continued stress states which may produce eventual alterations in structure

Exhaustion may result from physical and emotional strain or from the innumerable vexations and torments of modern times Identification of the most common causes that bring about exhaustion is helpful These may be identified as the various illnesses, functional disturbances, organic diseases, abnormal mental attitudes, and many other conditions It is important to realize that the body can neutralize the wasting of its reserve if given adequate assistance

The wear and tear reactions in the body are reflected in the variations of function which revolve around the pituitary-adrenal axis For example, 17-ketosteroid output is lowered in chronic illness, a frequent experience of the elderly Recent physiological and biochemical tests that have been studied showed no essential differences in relation to stress between normal healthy youngsters and healthy older persons In a number of conditions, such as infections and antigenic stimuli, the older individuals seem to show a more superior and efficient response to the stimulus than do the very young, especially those under 2 years of age Mortality rates from circulatory and surgical procedures are about the same for good-risk patients regardless of their age Growing old, of itself, need not impair the responses to the strains of modern existence

Each individual is endowed with an amazing margin of reserve at birth Apparently this is specific for the individual As yet, only the most crude methods are

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Chief, Medical Service Staff B,' The Lankenau Hospital

Members of the Committee on Aging are Drs H B Mulholland Chairman Charlottesville, Va, Edward L Bortz, Philadelphia Henry A Holle, Austin, Texas, Wingate M Johnson, Winston Salem, N C, Theodore G Klumpp, New York, Frederick C Swartz, Lansing, Mich, and Cecil Wittson, Omaha Committee Staff Mr George W Cooley, Secretary and Mr Herbert B Norton Research Assistant available for studying the reserve of particular organs at the clinical level However, conditions of physical sickness are now being observed, and methods are being tried in an endeavor to estimate the reserve of particular systems such as the pulmonary tract, the heart, the arterial system, and the nervous system Exhaustion, experimentally, of certain organs such as the pancreas can produce temporary disease When the body, with the passage of time, is unable to completely renew its energy and heal injured tissues, the scar of the disease remains This stigma may be of little consequence if it occurs in a part of the body that is not vital to continued existence On the other hand, even a small clot in a blood vessel in a vital area of the heart or the brain stem might produce fatal outcome to a body that is in otherwise excellent condition As long as the individual maintains good homeostasis and thereby is capable of meeting the day-to-day stresses and strains satisfactorily, aging per se has little, if any, influence on impairing stress responses The diseases and deteriorations of tissues in older individuals embarrass physiological responses and thereby set the stage for further structural damage This is an important point, for it emphasizes the necessity for maintaining good physical fitness as a factor for long life

In long-term illnesses, especially those in which considerable wear and tear of tissues occurs, with continued stimulus of the pituitary-adrenal axis, the 17-ketosteroid output is lowered When the reserves of the body are extended in excess of energy replacement, the individual is living at a deficit He is spending more of his basic vitality than he is renewing At the particular moment in his life when the expenditure of tissue energy exceeds tissue repair, senescence has begun The rate of senescence may be demonstrated very well experimentally In animals, changes which resemble the degenerative alterations characteristic of old age may be produced in the organs by long-continued stresses The body responds in a nonspecific as well as in a specific manner to the various obnoxious agents such as infection, neoplasm, metabolic deficiency, or organ decompensation Impulses arrive at the anterior pituitary axis through the hypothalamic nuclei and through the mediation of epinephrine Next, the pituitary secretes the trophic hormones Through this mechanism there is a shift in the balance of hormone production with a relative diminution of thyrotropic and gonadotropic hormones with an increase in the production in corticotropin

From the specific hormones of the adrenal glands, effects occur in practically every organ of the body Tissue metabolism may be greatly altered The blood sugar level may fall An ulcer may develop somewhere in the gastrointestinal tract Increased capillary permeability may occur According to the adaptation reaction of Selye, these are classified as the first or alarm reaction phase In the so-called counter shock phase, a reversal of some of these effects may take place Authorities agree on the changes which take place in the structure and function of organs with advancing age There is a loss of fluid and an increased frequency of achlorhydria Frequently there is a mild loss of glucose tolerance However, the healthy older body must be much more carefully studied before it is condemned to unhappy and deficit existence

Since life entails a continual striving to attain aims, it is impossible to conceive of living without stress The objectives of an ambitious individual are only obtained by strong drive with the expenditure of energy Without some commitment of this kind there can be no stress For many authorities the terms stress, strain, and striving are practically identical Without motive there is no effort, without effort there is no strain, and without strain there is no stress Stress implies combat—combat with oneself against some tendency or habit or against some circumstances in general The time of stress may be short or long, the outcome may be unsuccessful As a rule, the individual is aware of the stress The stress itself is not so important as the depletion of energy leading to exhaustion The problem then is simplified by consideration of maintenance of adequate organic reserve that may be physical or mental Antistress factors then take on a new significance

Fatigue, like stress, is a many-sided experience, one for which an adequate definition has not been stated Fatigue refers to the condition of a body weakened by prolonged stress This may set the stage for many clinical syndromes The majority of these are referable to the circulation, the digestive tract, and the central nervous system Definite changes in the physiochemical pattern of the blood may frequently be discovered Fatigue is subjective, the patient has difficulty in performance There is a drag and increasing unwillingness on the heart, the brain, and the nervous system to respond to demand A tired person is unlikely to have any enthusiasm about anything When he is enthusiastic the fatigue disappears Weariness and boredom in oldsters are invited by lack of motivation Personal attitudes take on significances as motivation reflecting a sense of values This becomes more and more important with advancing years

Conditions which produce stress and fatigue leading to exhaustion are now being studied Their reflection in the various constituents of the blood and tissue fluids is becoming known Protective nutrition, anxiety resolving devices, and specific motivation are basic essentials These are now generally accepted Margins of reserve for each individual may be recreated that will grant him longer life and, perhaps, a more enjoyable one Improved living conditions, which are the attributes of a society highly sensitive to social responsibility in the atomic era, are capable of bringing about a deeper measure of enjoyable existence

In resisting the useless expenditure of energy, man's fight with time is his greatest battle In that battle, his emotional life—the surplus of hope over despair, of love over indifference, of motive over resignation—is highly important As Helton [2] points out, it is not a fight for the duration of the body so much as it is a fight for the duration of the capacity for happiness One can be too busy and too active in the process of maturing to be annoyed by the deteriorations of aging Purposeful activity up to the limits of physiological and mental optimum represents the most potent factor in the fight against premature human deterioration

References

1 Selye H What Is Stress? Metabolism **5** 525-530 (Sept) 1956

2 Helton, R A Old People A Rising National Problem Harpers Magazine **179** 449-459 (Oct) 1939

MEDICAL NEWS

ALABAMA

State Medical Election —The Medical Association of the State of Alabama has installed the following officers Dr John A Martin, Montgomery, president, Dr Edgar G Givhan Jr , Birmingham, president-elect, Drs Hugh E Gray, Anniston, Samuel W Windham, Dothan, William D Anderson, Tuscaloosa, and Everett L Strandell Brewton vice-presidents, Dr Douglas L Cannon, Montgomery, secretary-treasurer, and Mr W A Dozier Jr , Montgomery, executive-secretary

CONNECTICUT

Rabies in Animal —Connecticut's first instance of rabies since 1949 was reported when a rabid skunk was found in New Canaan near the New York State border It was reported that rabies in foxes has for several years been a problem in neighboring New York state, west of the Hudson River, which heretofore served as a natural barrier presumably in protecting Connecticut foxes

FLORIDA

State Medical Election —The Florida Medical Association has installed the following officers Dr William C Roberts, Panama City, president, Dr Jere W Annis, Lakeland, president-elect, Dr Ralph W Jack, Miami, first vice-president, Dr Walter E Murphree, Gainesville, second vice-president, Dr James T Cook Jr, Marianna, third vice-president, Dr Samuel M Day, Jacksonville, secretary-treasurer, and Dr Shaler A Richardson, Jacksonville, editor

ILLINOIS

Personal —Dr Andrew J Toman, medical superintendent of the Bridewell for 20 years, has been named health officer of Berwyn succeeding Dr Nicholas Frankovelgia, who resigned after serving as Berwyn health chief since 1954 Dr Toman served at the Bridewell from 1932 to 1952 and from 1953 until his present appointment He was medical director of the Chicago plant of Armour & Co ——Dr Elvin L Sederlin, formerly of Helena, Mont , has been appointed director of the Adams County Department of Health He previously served as director of the local health services for the Montana State Board of Health Before going to Montana, Dr Sederlin served as director of the DuPage County Health Department ——Dr Thornton A Davis, Skokie, has been named president of the medical staff of the Ravenswood Hospital, Chicago

Mobile Emergency Hospitals —A mobile emergency hospital caravan, sponsored by the Illinois Department of Public Welfare in cooperation with the Illinois Civil Defense Agency, has had its premiere showing at the Illinois State Fair, Springfield The mobile emergency hospital contains a representative portion of all equipment and facilities for a complete 200-bed civil defense emergency hospital For display purposes, the hospital is transported in a caravan of two trucks and one passenger car for personnel

The Federal Civil Defense Administration, through the Illinois Civil Defense Agency, has allocated 132 complete 200-bed hospitals to Illinois These hospital units are stored in sealed boxes, 16 of them at public welfare institutions The boxes are to be opened only in the event of an emergency The mobile emergency hospital may be displayed in only 2,500 square feet of space, yet show all essential elements The caravan display unit will be used for training purposes at meetings of local civil defense groups, medical and nursing societies

The Illinois Department of Public Welfare is responsible for developing and training a staff of volunteers to operate a complete 200-bed hospital should a major disaster occur anywhere in Illinois Dr Frederick Plotke, chief, Illinois Public Health Service, will coordinate the emergency hospital project with federal and state civil defense agencies, the Illinois Public Aid Commission, Illinois State Medical Society, American Red Cross, Illinois National Guard, and the other medical and nursing groups

Chicago

Society News —The officers of the Chicago Society of Allergy for 1957-1958 are Dr Norman J Ehrlich, president, Dr Harold C Wagner, president-elect, and Dr Israel A Fond, secretary-treasurer

Dr Dickinson Goes to Seattle —Dr Robert H Dickinson has been appointed medical director of the Pinel Foundation Hospital, Seattle He was formerly professor of psychiatry and coordinator of clinical services at the University of Chicago School of Medicine Dr Dickinson will assume his new duties in September succeeding Dr Stanley Jackson who is entering private practice

Personal —Dr Aldo A Luisada, director, division of cardiology, Chicago Medical School, was invited by the heart associations of five South American countries to make a lecture tour commencing Aug 15 and continuing through Sept 25 The countries concerned are Peru, Chile, Argentina, Uruguay, and Brazil Twenty-two lectures will be given in the following cities Lima, Santiago, Buenos Aires, Rosario, Montevideo, San Paolo, and Rio de Janeiro

KANSAS

University News —Dr Charles M Poser has been given the rank of assistant professor of neurology and will form a new "Section of Experimental Neurology" within the department of medicine at Kansas University Medical School, Lawrence Dr Poser will continue

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Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health Programs should be received at least three weeks before the date of meeting of the electroencephalogram labora- continue his work at the Veterans Ad- Hospital, Winfield State Training School, Osawatomie State Hospital

University Society of Internists—The initial meeting of the Kansas University Society of Internists was held June 15 During the past year this organization was formed for the purpose of maintaining contacts between the past and present resident physicians in the department of medicine Plans call for the society to meet annually for an informal breakfast reunion and the Ralph H Major Lecture Guest of honor at the first breakfast meeting was Dr Paul Dudley White Boston, who delivered the fourth Major lectureship

Continue Polio Study—Studies of the invading effect of different strains of polio virus will be continued at Kansas University Medical School under a grant of $104,170 from the National Foundation for Infantile Paralysis The work will be directed by Dr Herbert A Wenner, *research professor of pediatrics* Associates are Dr Italo Archetti, associate professor of virus research, and Dr George R Dubes, assistant professor of pediatrics Part of the work will be directed toward investigating sites of virus multiplication in the body and the moving of virus during an infection Under a separate grant from the foundation, Dr Wenner and associates are preparing antisera to Coxsackie and Echo viruses The antisera are shipped to laboratories in the United States and foreign countries, where they are used by research teams studying these new viruses

KENTUCKY

Society News—Dr Robert W Robertson, Paducah, was recently elected president of the Kentucky Surgical Society Dr George H Rodman, Greenville, was named vice-president and Dr Charles M Bernhard, Louisville, is secretary-treasurer

LOUISIANA

Society News—The Radiological Society of Louisiana has elected the following officers president, Dr Matthew R Green, Ruston, vice-president, Dr Joseph T Brierre, New Orleans, and secretary-treasurer, Dr Seymour Ochsner, New Orleans

MAINE

Personal—Dr Adam P Leighton, Portland, has been reappointed a member of the State of Maine Board of Registration of Medicine for another term of six years, and is continuing as secretary This is his 43rd year as member and secretary of the board

Society News—At a recent meeting of the Maine Radiological Society the following officers were elected president, Dr John T Konecki, Lewiston, vice-president, Dr Irving L Selvage Jr, Portland, secretary-treasurer, Dr Francis J O'Connor, Augusta

MARYLAND

Dr Dyke Goes to Maryland—Dr Lester M Dyke has been appointed to direct the University of Maryland student health service Dr Dyke, currently director of the health services and professor of hygiene at the University of Illinois, Chicago, and medical director of the University Retirement System of Illinois, served with the United States Army Medical Corps for 26 years He retired in 1946 with the rank of colonel He will replace Dr Harry A Bishop, who will retire from the position he has held since September, 1948

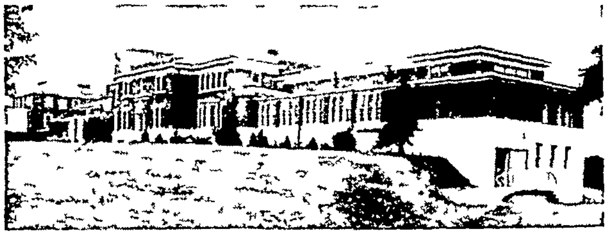
MISSOURI

Personal—Dr Willard M Allen, head, department of obstetrics and gynecology, Washington University, St Louis, received an honorary degree of doctor of science at the University of Rochester, N Y, *recently*

State Medical Election—The Missouri State Medical Association has installed the following officers Dr Walter S Sewell, Springfield, president, Dr W F Francka, Hannibal, president-elect, Dr M Pinson Neal, Columbia, Dr Paul R Whitener, Florissant, and Dr Joseph G Webster, Kansas City, vice-presidents, Dr Edward Bohrer, Jefferson City, secretary, and Dr Jerome I Simon, St Louis, treasurer

NEW JERSEY

New Building for Psychiatric Institute—The new building at the New Jersey Neuro-Psychiatric Institute, Princeton, which was dedicated recently is named after Dr Edward A Strecker, emeritus professor of psychiatry, University of Pennsylvania who has served as consultant for the Pennsylvania hospitals and consultant for the Army Air Force, and who has been appointed as the first professor of psychiatry at the Seton Hall College of Medicine and Dentistry, Jersey City The Edward A Strecker Building will serve as an admissions office, an initial diagnostic unit for inpatient services, and as an adjunct to community services at the Neuro-Psychiatric Institute Acoustical ceilings have been used throughout the building The total cost was $216,600



The Edward A Strecker building at the New Jersey Neuro-Psychiatric Institute, Princeton

NEW YORK

Dr Rioch to Give Salmon Lectures—The Salmon Committee on Psychiatry and Mental Hygiene has announced that this year's Thomas William Salmon Lectures will be given by Dr David McK Rioch, director, division of neuropsychiatry, Walter Reed Army Institute of Research, Washington, D C Dr Rioch will speak on "Research in Psychiatry Certain Problems and Developments in Multi-Disciplinary Studies at 4 30 and 8 30 p m Nov 21, at Hosack Hall of the New York Academy of Medicine

Albany Guild Formed —Catholic physicians of the Diocese of Albany met at the College of Saint Rose at the invitation of William A Scully, Bishop of Albany, to form a guild of Catholic physicians to be known as the Saint Luke's Guild of the Diocese of Albany The assembled doctors approved a constitution which had been prepared by a committee headed by Drs Clement J Handron, of Troy, John Filippone, of Albany, and Hugh Leahy, of Albany Officers of the newly formed Saint Luke's Guild, an affiliate of the National Federation of Catholic Physicians Guild, elected for the coming year are Dr Arthur J Wallingford, of Albany, president, Dr Clement J Handron, of Troy, vice president, Dr George L Marthy, of Albany, secretary, Dr William N Saint-John of Glens Falls, treasurer One of the purposes of the guild will be to offer programs in fields allied to religion and medicine

New Hospital Signalling System —An appropriation of $25,000 by the New York Community Trust will be used by the Memorial Center for Cancer and Allied Diseases to replace its present signalling system by a silent process that will send out selectively a radio impulse to any one of a maximum of 450 receivers carried by personnel of the institution The signal will be heard only by the individual to whom it is directed The area covered will include the group of buildings comprising the center

Under the projected arrangement, a radio wave emanating from the hospital's telephone room will trigger a beep beep" in the receiver carried by the person for whom the communication is intended This will direct him to the nearest telephone to obtain his message from the operator

Initial installation of 134 receivers will permit the discontinuance of an estimated 83% of the 1250 average daily pages made over the present audible system The eliminated calls will include all regular audible paging during the night hours from 10 p m to 7 a m

NORTH CAROLINA

Expansion of Pediatric Ward —Memorial Hospital at the University of North Carolina, Chapel Hill, has become the recipient of a grant of $22,000 from the Tri-Sigma national social sorority for expansion of the space and facilities for crippled and sick children in the pediatrics ward The expanded area will be named for the Robbie Page Memorial and will make possible an advanced therapy program The grant will be met by matching funds from the North Carolina Medical Care Commission A U-shaped outside terrace in the ward will be enclosed and the existing small play room walls removed in the process of reconstruction to produce a large play area, called a common room

Space for the therapy techniques, observation room, interview rooms, and other facilities will be available to aid in the children's treatment The reconstruction will add a net space of 1800 square feet to the therapy area The Memorial Fund was established in honor of Robbie who died of polio in 1951 Robbie was the son of Mr and Mrs Robertson Page of Douglaston, N Y Mrs Page was national sorority president at the time

OHIO

George Morris Curtis Lectureship —A George Morris Curtis Lectureship has been established at the Ohio State University Health Center "in recognition of Dr Curtis' leadership in the field of surgery" The lecture, to be given annually, is the culmination of the desire of many of Dr Curtis' former students and associates to establish permanent tribute to him Members of the division of thoracic surgery have made available a nucleus of $2,500 to establish the lectureship Selection of speakers will be made by a committee consisting of the dean of the College of Medicine, the chairman of the department of surgery, the chief of the division of thoracic surgery, and the secretary of the lectureship fund Tentative arrangements have been made to present the first lecture in October

Convert Children's Home to Hospital —Opportunity Home for Crippled Children, Toledo, is being converted into a hospital for the treatment of acute children's diseases The transformation, costing about $100,000, to be completed in about six months, will provide 62 pediatric beds and 18 convalescent beds The hospital will continue its rehabilitation and convalescent program for children with crippling diseases Reason for the change to a complete hospital is the decline in the need for convalescent bed care for children The east wing will be occupied by the new pediatric department and will be utilized for chronic convalescent care The cerebral palsy clinic, with its occupational, speech and physical therapy departments, will be moved to the second floor along with the laboratory and medical records room The x-ray department, now occupying the section to become surgery, will be transferred to the west wing, where additional facilities will provide for an emergency room, ambulance entrance, waiting room, doctors' room, and dietician's office

SOUTH CAROLINA

Society News —The South Carolina Society of Anesthesiologists has elected the following officers president, Dr John Doerr, Charleston, vice-president, Dr James L Duncan, Spartanburg, and secretary-treasurer, Dr J Ray Ivester, Charleston

TEXAS

Society News —Texas Industrial Medical Association has elected the following officers Dr Robert J Potts, Dallas, president, Dr Wendall H Hamrick, Houston, president-elect, Dr Max E Johnson, Austin, vice-president, and Dr Robert A Wise, Houston, secretary-treasurer —Dr Margaret Watkins, Dallas, was recently elected president of the Texas Orthopedic Association Other officers are Dr Duncan McKeever, Houston, vice-president, Dr B C Halley Jr, Fort Worth, secretary-treasurer, and Dr Edmund Cowart, Houston, 1958 program chairman

Research in Psoriasis —The department of dermatology, Baylor University College of Medicine, Houston, has announced an annual award of $1,000 for research on psoriasis Results of the research must have been presented before a dermatological medical society or published in a recognized medical journal during the calendar year The name of any applicant for the award, together with supporting data, should be submitted for consideration by Dec 31 of the same year The recipient will be determined by a committee composed of Drs Marcus R Caro, Edward P Cawley, Arthur C Curtis, Eugene M Farber, John M Knox Aaron B Lerner, and Carl T Nelson For information write Dr John M Knox, Department of Dermatology Baylor University College of Medicine Houston 25, Texas

VERMONT

University News—Approval of the establishment of separate departments of pediatrics and radiology, formerly having been divisions of the departments of medicine and surgery, respectively, at the University of Vermont College of Medicine, Burlington, beginning July 1, has been announced

WEST VIRGINIA

Postgraduate Institute—The second Postgraduate Institute, sponsored jointly by the Eastern Panhandle Medical Society and the West Virginia Chapter of the American Academy of General Practice, will be held at the Shenandoah Hotel, in Martinsburg, Sept 21-22 The general session includes the following topics and speakers

Rationality and Irrationality in Antibiotic Mixtures, Dr Count D Gibson, associate professor of medicine Medical College of Virginia, Richmond

Management of Pulmonary Emphysema Physiologic Basis and Practical Considerations, Dr John B Hickam associate professor of medicine, Duke University Durham, N C

Cholesterol—And Vascular Disease Dr John H Hodges assistant professor of medicine Jefferson Medical College Philadelphia

Pharmacologic Horizons—An Avalanche of New Drugs John C Krantz Jr, Ph D head, department of pharmacology University of Maryland, Baltimore

Peripheral Vascular Disease—Diagnosis and Treatment, Dr Louis M Krause, professor of clinical medicine, University of Maryland, Baltimore

Three separate sessions have been arranged for Sept 22 pediatrics, obstetrics, gynecology Application has been made for a credit of nine hours in category I for academy members Information may be obtained from Dr Halvard Wangee, General Chairman, Box 175, Shepherdstown, W Va

GENERAL

Muscular Dystrophy Grants—Recent allocations totaling $134,280 96 to support research in muscular dystrophy have been made by Muscular Dystrophy Associations of America, Inc, for scientific studies Of this sum, $26,460 was appropriated for a new research project and $107,820 96 for renewed or additional aid for 12 studies already under way The new grant-in-aid for research at the University of Pittsburgh is to Dr Thaddeus S Danowski, professor of research medicine, for 'muscular dystrophy studies" An additional $2,000 grant supplements the present research being conducted by Dr Gilbert H Glaser at Yale University School of Medicine, New Haven, Conn, where a renewal grant of $7,610 36 has been made to Melvin V Simpson, Ph D Additional grants-in-aid for continued scientific studies have been renewed at the University of Wisconsin Medical School, Madison, $11,988, Harvard University Medical School, Cambridge, Mass, $4,860, University of Illinois College of Medicine, Chicago, $6,987 60, University of Rochester School of Medicine and Dentistry, N Y, $16,135, University of California Medical Center, Los Angeles, $13,400, Western Reserve University, Cleveland, $7,452, University of Oklahoma School of Medicine and University Hospitals, Oklahoma City, $7,074, Columbia University College of Physicians and Surgeons, New York City, $12 474 and $3,240 (two grants), New York University Washington Square College of Arts and Science, New York City, $14,600

Prevalence of Poliomyelitis—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States, its territories and possessions in the weeks ended as indicated

	Aug 3 1957		Aug 4 1956
Area	Paralytic Type	Total Cases	Total Cases
New England States			
Maine	1	1	
New Hampshire	1	1	
Vermont			1
Massachusetts	1	2	5
Rhode Island			4
Connecticut		3	1
Middle Atlantic States			
New York	4	15	25
New Jersey	1	5	6
Pennsylvania		7	10
East North Central States			
Ohio	3	23	30
Indiana	3	8	16
Illinois	5	20	181
Michigan	6	27	26
Wisconsin	1	12	17
West North Central States			
Minnesota	1	8	6
Iowa	1	2	26
Missouri	1	7	17
North Dakota	1	2	
South Dakota			4
Nebraska		1	11
Kansas	2	5	9
South Atlantic States			
Delaware			
Maryland	1	1	5
District of Columbia	5	6	1
Virginia	1	7	12
West Virginia	1	3	4
North Carolina	2	21	12
South Carolina	2	3	2
Georgia	2	3	14
Florida	2	3	9
East South Central States			
Kentucky	4	7	4
Tennessee	1	3	9
Alabama		2	2
Mississippi		7	4
West South Central States			
Arkansas		1	17
Louisiana	1	4	41
Oklahoma	1	9	12
Texas	8	23	47
Mountain States			
Montana			1
Idaho		1	6
Wyoming		1	2
Colorado		2	9
New Mexico	2	4	4
Arizona		1	4
Utah			17
Nevada			4
Pacific States			
Washington			6
Oregon	1	3	10
California	5	33	104
Territories and Possessions			
Alaska			
Hawaii			1
Puerto Rico	6	6	
Total	77	303	758

Personal —In recognition "of accomplishments in Pan American fellowship and public health, and in appreciation of their long service to the organization' honorary membership certificates were presented by the United States—Mexico Border Public Health Association to the following Dr Donald Davey, assistant director, division of local health services, California Department of Public Health, Dr Fred L Soper, director, Pan American Sanitary Bureau, Washington, D C, Dr Ignacio Morones Prietom secretario, Secretaria de Salubridad y Asistencia Mexico, D F Mexico, Dr Manuel E Pesqueira, sub-secretario, Secretaria de Salubridad y Asistencia, Mexico D F

Allergy Foundation Awards —The American Foundation for Allergic Diseases has announced awards of $500 quarterly or summer scholarships to 20 medical students from approved medical schools throughout the United States and Canada to encourage young students to broaden their knowledge in the field of the allergic diseases by research and clinical training These awards were made possible by a grant to the foundation by the Gustavus and Louise Pfeiffer Research Foundation

The students selected were nominated by the deans of their respective medical schools in collaboration with the heads of basic science departments at these institutions The awards were made by the board of trustees of the foundation on recommendation of its Scientific and Educational Council The purpose of the awards is to expose the student to experience in the basic sciences related to allergy and to broaden the application of this knowledge through clinical experience The American Foundation for Allergic Diseases, with headquarters at 801 Second Ave, New York City, was established late in 1953, not only to promote medical education and research in the field of allergic diseases, but also to expand public education in this area

Surgeons Meeting in Chicago —The 22nd annual congress of the United States and Canadian Sections of the International College of Surgeons will be held Sept 8-12 in the Palmer House, Chicago The program includes the following symposiums Injuries of the Lumbar Spine, Eye Muscles, and Lacrimal Apparatus Foreign speakers include Dr A K Saha, Calcutta, India, Dr John Charnley, Manchester, England, Dr Jesus V Tamesis, Manila, Phillippines, and Dr Ronald Jarman, London Panel discussions include the following topics and moderators

Myringoplasty and Tympanoplasty for the Improvement of Hearing in Non-Otosclerotic Conductive Losses, Dr George Shambaugh Jr, Chicago
Poliomyelitis and the Role of the Otolaryngologist in Its Management, Dr George A Saxton Jr, Chicago
Tumors of the External Ear, Glomus Tumors, Acoustic Neuromas, Dr John Lindsay, Chicago

A special symposium to be conducted Sept 12, will consider the medical problems of the Navy, particularly those arising out of the atomic age Besides a general assembly there will be section programs in the following Coloproctologic surgery, neurosurgery, obstetrics-gynecology, occupational surgery, ophthalmology-otolaryngology, orthopedic surgery, plastic and reconstructive surgery, and urologic surgery For information write Dr Ross T McIntire, Executive Director, International College of Surgeons, 1516 Lake Shore Drive, Chicago 10

Obstetricians and Gynecologists Meet —The 68th annual meeting of the American Association of Obstetricians and Gynecologists will be held Sept 5-7 at the Homestead, Hot Springs, Va The presidential address will be given by Dr F Bayard Carter, Durham, N C and the Joseph Price Oration Sept 5 by Dr Magnus Haines, chief of pathology, Chelsea Hospital for Women, University of London School of Medicine The prize thesis of the American Association of Obstetricians and Gynecologists Foundation, Inc, will be given by Dr Harry S McGaughey Jr on 'The Placental Transfer in Normal and Toxic Gestation" The program includes the following topics to be given by invited speakers

Closure of the Incompetent Cervix During Pregnancy, Dr Robert H Barter, George Washington University School of Medicine, Washington D C
Microscopic Anatomy of the Fetal Membranes, Dr David N Danforth, Evanston, Ill
Cervical Stump Carcinoma, Dr Robert N Creadick Duke University School of Medicine, Durham, N C
Conservation of Ovarian Tissue at Radical Surgery for Carcinoma of the Cervix, Dr Milton L McCall Louisiana State University School of Medicine, New Orleans, La
The Team Approach in Endometrial and Cervical Neoplasia, Dr John A Wall Texas Medical Center, Houston Texas

A motion picture session is scheduled for the afternoon of Sept 5 at which Mr John Howkins, Mr Keith Vartan and Mr Alistair Gunn, Gynaecological Travellers of Great Britain and Ireland, will make presentations The banquet will be held the evening of Sept 6 For information write Dr E Stewart Taylor, 4200 E Ninth Ave, Denver 20, Colo

EXAMINATIONS AND LICENSURE

BOARDS OF MEDICAL EXAMINERS

ALABAMA *Examination* Montgomery, June 17-19 Sec, Dr D G Gill, State Office Building, Montgomery 4

ARIZONA * *Examination and Reciprocity* Phoenix, Oct 16-18 Exec Sec, Mr Robert Carpenter, 826 Security Bldg, Phoenix

ARKANSAS * *Examination and Reciprocity* Little Rock, Nov 7 Sec, Dr Joe Verser, Harrisburg

CALIFORNIA *Written Examination* Sacramento, Oct 21-24 *Oral Examination* San Francisco, Nov 16 *Oral and Clinical for Foreign Graduates* San Francisco, Nov 17 Sec, Dr Louis E Jones, 1020 N St, Sacramento 14

COLORADO * *Reciprocity* Denver, Oct 8 *Examination* Denver, Dec 3 4 Exec Sec, Mrs Beulah H Hudgens, 715 Republic Bldg, Denver 2

CONNECTICUT * *Examination* Hartford, Nov 12-14 Sec, Dr Creighton Barker, 160 St Ronan St, New Haven *Homeopathic Examination* Derby, Sept 10 Sec, Dr Donald A Davis, Derby

Delaware *Examination* Dover, Jan 14-16 *Reciprocity* Dover, Jan 23 Dr Joseph S McDaniel, Professional Bldg, Dover

District of Columbia * *Reciprocity* Washington, Sept 9 *Examination* Washington Nov 12-13 Deputy Director, Mr Paul Foley 1740 Massachusetts Ave, N W Washington, D C

Florida * *Examination* Miami, Nov 24-26 Sec Dr Homer L Pearson, 901 N W 17th St, Miami 36

Georgia *Examination* Atlanta, Oct 8-9 *Reciprocity* Atlanta Oct 10 Sec, Mr Cecil L Clifton 111 State Capitol, Atlanta 3

Idaho *Examination and Reciprocity* Boise, Jan 13-15 Ex Sec, Mr Armand L Bird, 364 Sonna Bldg, Boise

Kentucky *Examination* Louisville, Dec 9-11 Sec, Dr Russell E Teague 620 South Third St Louisville 2

Maine *Examination* Portland, Nov 12-14 *Reciprocity* Portland, Nov 12 Sec, Dr Adam P Leighton, 192 State St Portland

Maryland *Reciprocity* Baltimore, September *Examination* Baltimore, Dec 10-13 Sec, Dr Frank K Morris, 1211 Cathedral St, Baltimore

Massachusetts *Examination* Boston, Jan 14-17 Sec, Dr Robert C Cochrane, 37 State House, Boston

Michigan * *Examination* Lansing, Oct 9-11 Exec Sec, Dr E C Swanson, 118 Stevens T Mason Bldg, Lansing 8

Minnesota * *Examination and Reciprocity* Minneapolis, Oct 15-17 Sec, Dr F H Magney, 230 Lowry Medical Arts Bldg, St Paul 2

Mississippi *Reciprocity* Jackson, December *Examination* Jackson, June Asst Sec, Dr R N Whitfield, Old Capitol, Jackson 113

Montana *Examination and Reciprocity* Helena, Oct 1-2 Sec, Dr Thomas L Hawkins, 555 Fuller Ave, Helena

Nebraska * *Examination* Omaha, June Sec, Mr Husted K Watson, Room 1009, State Capitol Bldg, Lincoln 9

Nevada * *Examination and Reciprocity* Reno, Sept 3 Sec, Dr George H Ross, 112 North Curry St, Carson City

New Hampshire *Examination and Reciprocity* Concord, Sept 11-13 Sec, Dr John S Wheeler, 107 State House, Concord

New Jersey *Examination* Trenton, Oct 15-18 Sec, Dr Patrick H Corrigan, 28 W State St Trenton

New Mexico * *Examination and Reciprocity* Santa Fe, Nov 18-19 Sec, Dr R C Derbyshire, 227 East Palace Ave, Santa Fe

New York *Examination* Albany, Buffalo, New York and Syracuse Dec 10 13 Sec, Dr Stiles D Ezell, 23 South Pearl St, Albany 7

North Carolina *Endorsement* Morehead City, Oct 12 Asst Sec, Mrs Louise J McNeill, 716 Professional Bldg Raleigh

North Dakota *Examination* Grand Forks, Jan 9-12 *Reciprocity* Grand Forks, Jan 12 Sec, Dr C J Glaspel, Grafton

Ohio *Endorsement* Columbus, Oct 1 *Examination* Columbus, Dec 17-19 Sec, Dr H M Platter, 21 W Broad St, Columbus 15

Oklahoma *Examination* Oklahoma City, Dec 14-15 Sec, Dr E L Lester, 813 Braniff Bldg, Oklahoma City

Oregon * *Reciprocity and Endorsement* Portland, Oct 3 5 *Examination* Portland, January Exec Sec, Mr Howard I Bobbitt, 609 Failing Bldg, Portland

Rhode Island * *Examination* Providence, Oct 3-4 Administrator of Professional Regulation, Mr Thomas B Casey, 366 State Office Bldg, Providence

South Carolina *Examination* Columbia, Dec 10, Sec, Dr H E Jervey, Jr, 1329 Blanding St, Columbia

South Dakota * *Examination* Sioux Falls, Jan 21-22 Exec Sec, Mr John C Foster, 300 First National Bank Bldg, Sioux Falls

Tennessee * *Examination* Memphis, Sept 25-26 Sec, Dr H W Qualls, 1635 Exchange Bldg, Memphis 3

Texas * *Examination and Reciprocity* Fort Worth, Dec 5-7 Sec, Dr M H Crabb, 1714 Medical Arts Bldg, Fort Worth 2

Utah *Examination* Salt Lake City, July 9-11 Director, Mr Frank E Lees, 324 State Capitol Bldg, Salt Lake City 1

Virginia *Reciprocity* Richmond, Dec 4 *Examination* Richmond, Dec 5-7 Address Office of the Secretary, 631 First St, S W, Roanoke

Washington * *Examination* Seattle, Jan 13-15 Sec, Mr Thomas A Carter, Capitol Bldg, Olympia

West Virginia *Reciprocity* Charleston, Oct 7 *Examination* Charleston, January Sec, Dr Newman H Dyer, State Office Bldg, No 3, Charleston 5

Wisconsin * *Reciprocity* Madison, Oct 18 *Examination* Madison, January Sec, Dr Thomas W Tormey, Jr, 1140 State Office Bldg, Madison

Wyoming *Examination and Reciprocity* Cheyenne, Sept 30 Sec, Dr Franklin D Yoder, State Office Bldg, Cheyenne

Alaska * On application in Anchorage and Juneau Sec, Dr W M Whitehead, 172 South Franklin St, Juneau

Guam *Subject to Call* Act Sec, Dr S F Provencher, Agana

Hawaii *Examination* Honolulu, Jan 13-14 Sec, Dr I L Tilden, 1020 Kapiolani St, Honolulu

Puerto Rico *Examination* San Juan, September 4 Sec, Mr Joaquin Mercado Cruz, Box 9156, Santurce

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Arizona *Examination* Tucson, Sept 17 *Reciprocity* Tucson, Sept 19 Sec, Mr Herman E Bateman, University of Arizona, Tucson

Arkansas *Examination* Little Rock, Oct. 7-8 Sec, Mr S C Dellinger, Zoology Department, University of Arkansas, Fayetteville

Colorado *Examination and Reciprocity* Denver, Sept 4-5 Sec, Dr Esther B Starks, 1459 Ogden St, Denver 18

Connecticut *Examination* New Haven, Oct 12 Exec Asst, Mrs Regina G Brown, 258 Bradley St, New Haven 10

District of Columbia *Examination* Washington, Oct 21-22 Deputy Director, Mr Paul Foley, 1740 Massachusetts Ave, N W, Washington, D C

Florida *Examination* Gainesville, Nov 9 Sec, Mr M W Emmel, Box 340, University of Florida, Gainesville

Iowa *Examination and Reciprocity* Des Moines, Oct 8 Sec, Dr Elmer W Hertel, Waverly

Michigan *Reciprocity* Ann Arbor, Sept 7 *Examination* Ann Arbor and Detroit, Oct 11-12 Sec, Mrs Anne Baker, 116 Stevens T Mason Bldg, West Michigan Ave, Lansing

Minnesota *Examination* Minneapolis, Oct 1-2 Sec, Dr Raymond N Bieter, 105 Millard Hall, University of Minnesota, Minneapolis 14

Nevada *Examination* Reno, Sept 3 Sec, Dr Donald G Cooney, Box 9005, University Station, Reno

New Mexico *Reciprocity* Santa Fe, Sept 29 *Examination* Santa Fe, Oct 20 Sec, Mrs Marguerite Cantrell, Box 1522, Santa Fe

Oklahoma *Examination* Oklahoma City, Sept. 27-28 Sec, Dr E F Lester, 813 Braniff Bldg, Oklahoma City

Oregon *Examination* Portland, Sept 7 Sec, Dr Earl M Pallett, University of Oregon, Eugene

South Dakota *Examination* Vermillion, Dec 6-7 Sec, Dr Gregg M Evans, 310 E 15th St, Yankton

Tennessee *Examination* Memphis, Sept. 25-26 Sec, Dr O W Hyman, 62 South Dunlap St, Memphis 3

Texas *Examination* Austin, October Chief Clerk, Miss Pearl A. Barrera, 407 Perry-Brooks Bldg, Austin

Wisconsin *Examination* Madison, Sept 20 and Milwaukee, Dec 7 Sec, Mr William H Barber, 621 Ransom St, Ripon

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*Basic Science Certificate required

DEATHS

Donaldson, Walter Foster ⊕ Bakerstown, Pa, born in Bridgeville Sept 13, 1873, Northwestern University Medical School, Chicago, 1898, president of the Medical Society of the State of Pennsylvania in 1917 and later became secretary, serving until 1944, when he was elected secretary-treasurer, an office to which he was subsequently reelected until 1952, when he retired, past-president and director of the Allegheny County Medical Society, member of the Council on Medical Education and Hospitals of the American Medical Association from 1924 to 1931, a member of its Judicial Council from 1931 to 1956, and its House of Delegates from 1923 to 1948, on the faculty of the University of Pittsburgh School of Medicine from 1921 to 1934, served as medical director and president of the Standard Life Insurance Company of America, fellow of the American College of Physicians, member of the Pittsburgh Academy of Medicine and Nu Sigma Nu, secretary of the Pennsylvania Committee on Medical Preparedness for National Defense during World War II, member of the National Health Program, Federal Conference Committee from 1938 to 1940, chairman, committee on war participation from 1942 to 1945, formerly on the staffs of the South Side Hospital, Presbyterian Hospital, and the Woman's Hospital in Pittsburgh, served as chairman of the health committee of the Pittsburgh Chamber of Commerce, editor of the *Pittsburgh Medical Bulletin* from 1928 to 1947, served as editor of the *Pennsylvania Medical Journal* died June 26, aged 83

Hammond, Roland ⊕ Providence, R I, born in Bellingham, Mass, July 29, 1875, Harvard Medical School Boston, 1902, specialist certified by the American Board of Orthopaedic Surgery, past-president of the Rhode Island Medical Society, member of the American Orthopaedic Association, of which he was formerly vice-president, and the American Academy of Orthopaedic Surgeons, fellow of the American College of Surgeons, member of the House of Delegates of the American Medical Association from 1924 to 1928, from 1930 to 1933, and 1937-1938, veteran of World War I, consultant at the Newport (R I) Hospital, Memorial Hospital, Pawtucket, Westerly (R I) Hospital, South County Hospital in Wakefield, and Roger Williams General, St Joseph's, Miriam, Rhode Island, Providence Lying-In, and Charles V Chapin hospitals, died in the Jane Brown Hospital June 11, aged 81, of cerebral thrombosis

Place, Edwin Hemphill ⊕ Francestown, N H, born in Milton, Wis, Sept 29, 1880, Harvard Medical School, Boston, 1904, member of the Massachusetts Medical Society, for many years practiced in Boston, where he was on the faculty of his alma mater, Tufts College Medical School, and the Massachusetts Institute of Technology, at one time member of the board of health of Boston, for many years associated with the Boston City Hospital, served as consultant in contagious diseases at the Emerson Hospital in Concord, Newton (Mass) Hospital and Massachusetts Eye and Ear Infirmary, Massachusetts General, Faulkner, Boston Floating, Massachusetts Memorial, and the Boston State hospitals in Boston, died June 17, aged 76, of bronchopneumonia and arteriosclerosis

Seay, Thomas Waller ⊕ Spencer N C, born in Spotsylvania, Va, Sept 5, 1894, University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1921, charter member of the American Academy of General Practice, veteran of World War I, served on the Spencer draft board during World War II, chairman of the East Spencer school board for six years, and for four years county coroner, past-president of the Rowan–Davie Counties Medical Society, in 1949 named “practitioner of the year for North Carolina, associated with the Rowan Memorial Hospital in Salisbury, where he was chief of staff, member and past-president of the Kiwanis Club, on the staff of the Rowan Memorial Hospital in Salisbury, died May 20, aged 62, of heart disease

Smith, Edward Milton Jr, Commander, U S Navy, Norfolk, Va, born in Baltimore May 10, 1922, University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1946, appointed a lieutenant (jg) in the Medical Corps of the Naval Reserve on March 6, 1946, reported for active duty on July 10, 1947, accepted an appointment in the regular Navy on Dec 30, 1947, assigned duty under instruction in public health at the Johns Hopkins University School of Hygiene and Public Health, Baltimore on Aug 21, 1954, on completion of this course was ordered to the Navy's Preventive Medicine Unit #2 at Norfolk, Va, as officer in charge, serving in that capacity at the time of his death May 13, aged 35, of injuries received in an automobile accident

Westerhoff, Peter De Tilius, Midland Park, N J, Long Island College Hospital, Brooklyn, 1924, formerly on the faculty of Columbia University College of Physicians and Surgeons, New York City, member of the American Academy of Ophthalmology and Otolaryngology, specialist certified by the American Board of Otolaryngology, served as mayor, veteran of World Wars I and II, member of the staff, St Joseph's Hospital, Paterson, died June 21, aged 60, of myocardial infarction

Berzins, Hugo Arnolds ⊕ Columbus, Ohio, Latvijas Universitate Medicinas Fakultate, Riga, Latvia, 1930, member of the Mercy Hospital, where he died June 5, aged 60, of myocardial infarction

Crane, Percy Radcliffe, Levittown, N Y, Long Island College Hospital, Brooklyn, 1906, for many years connected with the New York City Department of Health, died in Meadowbrook Hospital, Hempstead, June 22, aged 72

Cunningham, Modie Ezra, Lafayette Hill, Pa, Birmingham Medical College, Birmingham, Ala, 1900, veteran of the Spanish–American War and World

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⊕ Indicates Member of the American Medical Association

War I, died in the Montgomery Hospital, Norristown, June 24, aged 79, of cerebral vascular accident and cerebral thrombosis

Eurit, Deering Heaston, Argyle, Wis , Indiana University School of Medicine, Indianapolis, 1921, died June 26, aged 68

Feeley, Matilda Anne, San Francisco, Cooper Medical College, San Francisco, 1907, an associate member of the American Medical Association, died in the Notre Dame Hospital April 23, aged 79, of arteriosclerotic cardiovascular disease

Fellman, George Harry ⊕ Milwaukee, Rush Medical College, Chicago, 1897, past-president of the Medical Society of Milwaukee County and the Milwaukee Pediatric Society, a founder member of the American Academy of Pediatrics, at one time professor of pediatrics at the Milwaukee Medical College, served on the staffs of the Milwaukee, Milwaukee Children s, and the Evangelical Deaconess hospitals, died May 28, aged 85, of coronary occlusion

Fikany, Ethel Maria, Albuquerque, N M , Rush Medical College, Chicago, 1926, died in Good Samaritan Hospital, Phoenix, Ariz , June 14, aged 65, of heart failure

Foley, Charles Joseph ⊕ Havre de Grace, Md , University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1921, fellow of the American College of Surgeons, formerly vice-president of the Medical and Chirurgical Faculty of Maryland, on the staff of the Harford Memorial Hospital, a director of the Citizens National Bank and the Cash Loan Company, died in the Mercy Hospital, Baltimore, June 26, aged 61

Forbes, Neil Morton Jr ⊕ Laurel Miss , University of Tennessee College of Medicine, Memphis, 1941, veteran of World War II and was awarded the Silver Star for gallantry in action Feb 16, 1945, without regard for his own personal safety, constantly exposed himself to heavy enemy fire to care for the wounded, died in Birmingham, Ala , May 26, aged 40

Garber, Erwin Cleveland ⊕ Dunkirk, Ind , Ohio Medical University, Columbus, 1905, served as city health officer and county coroner, surgeon for the Pennsylvania Railroad, a director of the First State Bank, on the staffs of the Ball Memorial Hospital in Muncie and the Jay County Memorial Hospital in Portland, where he died May 28, aged 75, of uremia and auricular fibrillation

Gordon, Louis E, Van Nuys Calif , Rush Medical College, Chicago, 1897, died in the Cedars of Lebanon Hospital, Los Angeles, June 19, aged 81, of brain tumor

Griffith, Wilbert E ⊕ Yatesboro, Pa , College of Physicians and Surgeons, Baltimore 1908, died in Richmond, Va , May 27, aged 71, of coronary arteriosclerosis

Hardy, Thomas Griffin, Farmville, Va , Medical College of Virginia, Richmond, 1914, member of the Medical Society of Virginia, fellow of the American College of Surgeons, past-president of the Fourth District Medical Society, formerly member of the state board of medical examiners, served with the British and American armies during World War I, for many years associated with the Southside Community Hospital, died June 24, aged 66

Hartstein, Edward, Forest Hills, N Y , Universitat Leipzig Medizinische Fakultat, Saxony, Germany, 1936, member of the Medical Society of State of New York, veteran of World War II, died March 17, aged 46, of coronary occlusion

Harvey, Frederick Charles, Spokane, Wash , McGill University Faculty of Medicine, Montreal, Que , Canada, 1897, specialist certified by the American Board of Ophthalmology, member of the emeritus staff, Sacred Heart Hospital, died in St Luke's Hospital May 23, aged 85, of cardiovascular accident

Hays, Henry Cornwell, Bonner Springs, Kan , Medical College of Ohio, Cincinnati 1892, veteran of the Spanish-American War, for many years member of the school board first president of the Rotary Club, of which he was a charter member, died in Kansas City, Mo , June 19, aged 89, of cancer of the prostate

Hecker, Charles Henry, Palo Alto, Calif , Washington University School of Medicine, St Louis, 1911, veteran of World War I, served on the staff of the Veterans Administration Hospital, died June 10, aged 82

Herrmann, Francis Joseph, Logansport, Ind , Bellevue Hospital Medical College, New York City, 1897, died in St Joseph Hospital June 4, aged 81

Hochfeld, Leo, New York City, University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1937, member of the Medical Society of the State of New York, the American College of Allergists, and the American Society of Clinical Pathologists, on the staffs of Morrisania, Beth David, and Lebanon hospitals, died June 30, aged 50, of Hodgkin's disease

Hoffmann, Bernhard Theodore ⊕ Glendora, Calif , Chicago College of Medicine and Surgery, 1912, formerly practiced in Chicago, where he was on the staff of the Grant Hospital, died July 6, aged 83

Jones, John E, Evans Mills, N Y , University of Buffalo School of Medicine, 1896, served as health officer, a member of the board of education, and a member of the village board, died in Utica June 22, aged 85, of coronary insufficiency and cerebral hemorrhage

Kelly, John Vincent ⊕ St Paul, Milwaukee Medical College, 1911, member of the staffs of St Joseph's and St Luke's hospitals, died June 20, aged 74, of hypertension and valvular heart disease

Kinney, Leslie Theron ⊕ Norwich, N Y , Syracuse University College of Medicine, 1927, county coroner, served as city health officer, school physician, and physician for the county welfare department, a member of the staff of the Chenango Memorial Hospital, died in the Binghamton (N Y) City Hospital June 25 aged 54

McCarty, Eugene Miller ⊕ Rumford, Maine, Medical School of Maine, Portland, 1900, fellow of the American College of Surgeons, died May 3, aged 82, of arteriosclerotic heart disease

McGugan, Arthur, Denver, University of Michigan Department of Medicine and Surgery, Ann Arbor, 1892, an associate member of the American Medical Association, veteran of World War I, died May 28, aged 86, of cerebral thrombosis and arteriosclerosis

McIntire Fred Joseph Jr ⊕ Marblehead, Mass , New York University College of Medicine, 1943, specialist certified by the American Board of Otolaryngology, veteran of World War II, on the staffs of the Massachusetts Eye and Ear Infirmary in Boston, Union Hospital in Lynn, and the Lynn (Mass) Hospital, where he died June 18, aged 42, of cancer

McLaughlin Charles William ⊕ Washington, Iowa, State University of Iowa College of Medicine, Iowa City, 1896, member of the honorary staff, Washington County Hospital, where he died May 26, aged 87, of uremia

McLean, William Joseph, Santa Monica, Calif , Tulane University School of Medicine, New Orleans, 1916, died June 4, aged 63, of a heart attack

McMahon, Curtman, Springfield, Ill , St Louis College of Physicians and Surgeons, 1907, died May 30, aged 71

Martin, Harry Bond ⊕ Harrold S D , Northwestern University Medical School, Chicago, 1908, died May 25, aged 72

Millhoff, William Clarence Dimmick, Clayton, N M , Harvard Medical School, Boston, 1918, died May 28, aged 64, of coronary occlusion

Ming, Charles Morris ⊕ Okmulgee, Okla , Washington University School of Medicine, St Louis, 1910, specialist certified by the American Board of Radiology, member of the Radiological Society of North America and the American College of Radiology, died in Tulsa May 27, aged 68

Minteer, James Frank, Butler, Pa , Western Pennsylvania Medical College, Pittsburgh, 1901, died in Worthington April 20, aged 83, of pulmonary embolism

Mintzer, George Seltzer, Philadelphia, Medico-Chirurgical College of Philadelphia, 1899, an associate member of the American Medical Association, veteran of the Spanish-American War and World War I, served on the staff of the Methodist Hospital, died June 11, aged 79, of carcinoma

Morgan, John William Henry ⊕ Rose Hill, Va , University of Virginia Department of Medicine, Charlottesville, 1943, interned at the Ohio Valley General Hospital, died May 30, aged 40

Morgan, William Earle, Aberdeen, Wash , University of Oregon Medical School, Portland, 1943, member of the Washington State Medical Association, fellow of the American College of Surgeons, veteran of World War II, died May 31, aged 39, of coronary occlusion

Muehleck, George Ernest ⊕ New York City, Columbia University College of Physicians and Surgeons, New York City, 1918, assistant clinical professor of surgery at New York University College of Medicine, for many years associated with the Lenox Hill Hospital, died June 6, aged 63

Palmer, Clarence Bruckner ⊕ Covington, Ga Emory University School of Medicine, Atlanta, 1929, vice-councilor of the Medical Association of Georgia, veteran of World War II, member of the staff of the Piedmont Hospital in Atlanta and Newton County Hospital, died June 3, aged 51, of myocardial infarction, and nephrolithiasis

Parkinson, Vernon Matthew, Dolgeville, N Y , University and Bellevue Hospital Medical College, New York City, 1912 an associate member of the American Medical Association, past-president of the Herkimer County Medical Society, served as medical superintendent of the Montgomery Sanitarium in Amsterdam and the Pine Crest Sanatorium in Salisbury Center, director of the First National Bank of Dolgeville, died May 30, aged 68, of carcinoma of the sigmoid

Parson, Willard Sigsbee ⊕ Baltimore, Medical College of Virginia, Richmond 1924 member of the American Academy of General Practice, vice-president of the American Academy of General Practice of Maryland, veteran of World War I, associated with Bon Secours Hospital and St Agnes Hospital, where he died June 3, aged 59, of uremia and gastrointestinal hemorrhage

Petrie, Scott T , Chicago, Harvey Medical College, Chicago 1904, died in St Mary of Nazareth Hospital May 13, aged 82, of cancer

Pettie, Foster Blodgett, Corona, N Y , Howard University College of Medicine, Washington D C , 1926 died in the Queen's General Hospital, Jamaica, June 13, aged 58

Phillips, Harry Boyd, Rochester N Y , University of Buffalo School of Medicine, 1915, died June 2, aged 65, of cancer of the prostate

Pilosi, Edward Mario ⊕ Jamaica, N Y , St Louis University School of Medicine, 1934, served on the staff of the Queens General Hospital, died June 10, aged 49 of acute coronary occlusion

Pratt, Robert Boyd ⊕ Bellefontaine, Ohio, Jefferson Medical College of Philadelphia, 1910, member of the founders group of the American Board of Surgery, veteran of World War I and was decorated by the French government with the Croix de Guerre, past-president of the Logan County Medical Society on the staff of the Mary Rutan Hospital for many years, died June 4, aged 70, of cerebral hemorrhage

Pressey, Harold Elbert, Bangor Maine, Harvard Medical School, Boston, 1930, certified by the National Board of Medical Examiners, veteran of World War II, interned at the Boston City Hospital, on the staff of the Eastern Maine General Hospital, died June 10, aged 52, of acute coronary thrombosis

Quillin, Lawrence Jacob, San Gabriel, Calif , Northwestern University Medical School, Chicago, 1910, died in St Luke s Hospital, Pasadena, March 4, aged 70, of cancer of the lung

Remington, Paul Archibald ⊕ Spokane, Wash, Milwaukee Medical College, 1911, specialist certified by the American Board of Otolaryngology, past-president and secretary of the Spokane County Medical Society, fellow of the American College of Surgeons, served on the staffs of the Booth Memorial, St Luke's, and Sacred Heart hospitals, died June 4, aged 69, of congestive heart failure and hypertension

Rogers, Platt Harrison, West Haven, Conn, Yale University School of Medicine, New Haven, 1912, member of the Connecticut State Medical Society, veteran of World War I, formerly member of the board of health, died in the Veterans Home and Hospital, Rocky Hill, June 2, aged 67, of bronchopneumonia, cerebral hemorrhage, and pyelonephritis

Rothschild, Daniel Leslie, Irvington, N J, Cornell University Medical College, New York City, 1930, member of the Medical Society of New Jersey, veteran of World War II, on the staff of the Beth Israel Hospital in Newark, where he died June 10, aged 50, of myocardial infarction

Schaefer, Arthur C ⊕ Buffalo, University of Buffalo School of Medicine, 1905, member of the American College of Radiology, served at the Mexican Border, veteran of World War I and was cited by Gen John J Pershing for 'exceptional meritorious and conspicuous service', for many years deputy health commissioner of Buffalo, served on the board of visitors of the Ray Brook (N Y) State Tuberculosis Hospital, died in the Millard Fillmore Hospital June 1, aged 74

Schlossstein, Adolph George ⊕ St Louis, Washington University School of Medicine, St Louis, 1894, assistant clinical professor emeritus of obstetrics and gynecology at his alma mater, where he joined the faculty in 1901, served on the staffs of the Barnes and St Louis Maternity hospitals, died May 23, aged 84

Scott, Wood Henderson ⊕ Baton Rouge, La, Louisiana State University School of Medicine, New Orleans, 1938, veteran of World War II, served as medical director of the state department of welfare, died in Our Lady of the Lake Hospital May 23, aged 52, of cerebral thrombosis

Selig, Rudolf, New York City, Universitat Heidelberg Medizinische Fakultat, Baden, Germany, 1911, member of the Medical Society of the State of New York, died in the West Hill Sanitarium June 5, aged 71

Seligman, Albert E ⊕ Staten Island, N Y, Universitat Heidelberg Medizinische Fakultat, Baden, Germany, 1916, member of the American Academy of Ophthalmology and Otolaryngology, specialist certified by the American Board of Otolaryngology, on the staffs of the Willbrook State School, Richmond Memorial, and St Vincent's hospitals, died June 17, aged 66, of leukemia

Sherwood, Marcel Wesley ⊕ Temple, Texas, University and Bellevue Hospital Medical College, New York City, 1906, member of the American Association for the Surgery of Trauma, specialist certified by the American Board of Surgery, fellow of the American College of Surgeons, served on the staffs of the Gulf, Colorado and Santa Fe Hospital and Scott and White Hospital, where he died June 3, aged 74

Sipman, Harold Irwin ⊕ Oakland, Calif, University of California School of Medicine, San Francisco, 1934, interned at Highland Hospital of Alameda County, on the staff of the Peralta Hospital, member of the American Proctologic Society, died June 20, aged 47

Skoller, Julius ⊕ Venice, Calif, Loyola University School of Medicine, Chicago, 1940, interned at the Los Angeles County Hospital, veteran of World War II, on the staff of the Santa Monica (Calif) Hospital, died in the Mount Sinai Hospital Los Angeles May 27, aged 42, of coronary thrombosis

Smith, Charlotte Dodd Stewartson ⊕ Manchester, N H, Tufts College Medical School, Boston, 1900, died May 30, aged 92

Smolt, Lillian Alberta Polhamus ⊕ Ventura, Calif, Rush Medical College, Chicago, 1928, member of the staffs of the Ventura General Hospital and the Foster Memorial Hospital, where she died June 13, aged 55, of chronic glomerulonephritis and uremia

Solter, Harry Christian, Sweetsprings, W Va, University of Maryland School of Medicine, Baltimore, 1899, died June 6, aged 79, of coronary thrombosis

Spitzig, B Louis, Cleveland, St Louis University School of Medicine, St Louis, 1910, member of the staff of St John's Hospital, died in Lakewood, Ohio, June 11, aged 70, of coronary thrombosis

Stewart, Charles Eugene, La Canada, Calif, University of Michigan Department of Medicine and Surgery, Ann Arbor, 1895, fellow of the American College of Physicians, formerly associated with the Battle Creek (Mich) Sanitarium, died May 24, aged 88

Stiles, Henry Ranney, Lieut Colonel, U S Army, retired, Louisville, Ky, Yale University School of Medicine, New Haven, Conn, 1888, veteran of World War I, entered the medical corps of the U S Army in 1892 and retired July 1905, returned to active duty in 1915 and relieved from active duty in March, 1922, service member of the American Medical Association, died in the Kentucky Baptist Hospital May 20, aged 90, of heart disease

Stillson, Austin Jeremiah ⊕ Binghamton, N Y, Medico-Chirurgical College of Philadelphia, 1901, for many years county coroner, during World War I a draft board medical examiner and during World War II served on Selective Service Board 441, associated with the Binghamton City Hospital and the Our Lady of Lourdes Memorial Hospital, died in Windsor June 7, aged 77, of cerebral hemorrhage

Swackhamer, Chester Ray ⊕ Globe, Ariz, Rush Medical College, Chicago, 1913, past-president of the Arizona State Medical Association of the Southwestern Medical Association, and the Gila County Medical Society, for many years chief surgeon of the Magma Copper Company and Magma Railroad of Superior, died June 8, aged 71, of arteriosclerotic heart disease

Test, William Brantingham, Memphis, Tenn , University of Rochester (N Y) School of Medicine and Dentistry, 1931, certified by the National Board of Medical Examiners, member of the American Trudeau Society, service member of the American Medical Association, associated with the Veterans Administration Hospital as assistant chief, tuberculosis section, died May 25, aged 51, of a heart attack

Travis, William Barrette, Kentwood, La , Medical Department of Tulane University of Louisiana, New Orleans 1902, on the staff of the Beacham Memorial Hospital in Magnolia, Miss , died June 13, aged 82 of pulmonary embolism

Trotter, William ⊕ Troy, N Y , Albany (N Y) Medical College, 1912, served in France during World War I, on the staffs of the Leonard Hospital and the Samaritan Hospital, where he died June 18, aged 69

Tyndall, Martha Winifred ⊕ Westfield, N J , University of Vermont College of Medicine, Burlington, 1933, at one time a member of the state board of health, served on the staffs of the Muhlenberg Hospital in Plainfield and the Rahway (N J) Memorial Hospital, died June 22, aged 62, of multiple myeloma

Wagner, Joseph Ralph, Palacios, Texas, Rush Medical College, Chicago, 1895, past-president of the school board, for many years city health officer, on the staff of the Bay View General Hospital, where he died May 28, aged 87, of cerebral thrombosis

Warmer Charles Andrew ⊕ Redondo Beach, Calif , University of Michigan Department of Medicine and Surgery, Ann Arbor, 1903, fellow of the International College of Surgeons and the American College of Surgeons, served on the staff of the Presbyterian Hospital-Olmsted Memorial in Los Angeles, died April 9, aged 80, of coronary occlusion

Wescott, Royal James ⊕ Everett, Wash , University of Wisconsin Medical School, Madison, 1936, veteran of World War II, member of the staffs of Providence and General hospitals, died June 4, aged 47

Westcott, Niles ⊕ Oak Lawn, R I , Yale University School of Medicine, New Haven, Conn , 1909, member of the American Psychiatric Association, served as assistant superintendent of the Rhode Island Hospital and the Butler Hospital, both in Providence, died in Warwick May 31, aged 76, of diabetes mellitus and arteriosclerosis

Wharton, James Osman ⊕ McAllen, Texas, Physio-Medical College of Texas, Dallas, 1906, member of the American Academy of General Practice, served as secretary of the Hidalgo-Starr Counties Medical Society, city health officer, member of the staff of the McAllen Municipal Hospital, where he died May 27, aged 77, of pulmonary emphysema and myocardial infarction

Wheeler, Samuel Edward, Columbia, S C , Medical College of South Carolina, Charleston, 1913, veteran of World War I, died in the Columbia Hospital June 4, aged 67

Wilkerson, Jesse Bert ⊕ Brevard, N C , Memphis (Tenn) Hospital Medical College, 1906, on the staff of the Transylvania Community Hospital, died April 28, aged 75, of Hodgkin's disease

Wilson, Norman Dickey ⊕ Jackson, Mich , Georgia College of Eclectic Medicine and Surgery, Atlanta, 1913, associated with the W A Foote Hospital, died June 13, aged 85, of acute pulmonary edema

Wolf, Roy Milton, Canon City, Colo , Kansas City (Mo) University of Physicians and Surgeons, 1921, died May 19, aged 75

Wood, Wilson Guyon, New York City, Columbia University College of Physicians and Surgeons, New York City, 1906, served in France during World War I, for many years associated with the New York Hospital, died in the Manhattan General Hospital June 17, aged 77, of congestive heart failure

Woomer, Albert, Cashtown, Pa , Kentucky University Medical Department, Louisville, 1904, an associate member of the American Medical Association, also a lawyer, died in the Annie M Warner Hospital May 28, aged 82, of cerebral thrombosis

Wronker, Harry ⊕ Rochester, N Y , Long Island College Hospital, Brooklyn, 1915, member of the American Academy of General Practice, veteran of World War I, member of the medical board of the Jewish Home and Infirmary and the Highland Hospital, where he died June 7, aged 64

Young, Charles Houston ⊕ Philadelphia, University of Pennsylvania Department of Medicine, Philadelphia, 1906, veteran of World War I, died in the Presbyterian Hospital May 26, aged 77

Young, Frank Walker, Colonel, U S Army, retired, San Antonio, Texas, Medical College of Alabama, Mobile, 1912 service member of the American Medical Association, veteran of World War I, entered the medical corps of the U S Army as a first lieutenant in January, 1920, rose through the various ranks to that of colonel in July, 1943, retired May 31, 1945, died in the Brooke Army Hospital, Fort Sam Houston, April 18, aged 67, of encephalomalacia

Young, James Clint, Jonesboro, Ark , University of Nashville Medical Department, 1891, Vanderbilt University School of Medicine, Nashville, Tenn , 1891, on the staff of the St Barnard Hospital, where he died April 24, aged 90

Zee, Urban Herbert ⊕ Mankato, Minn , Creighton University School of Medicine, Omaha, 1937, veteran of World War II, medical director of the Mankato Rehabilitation Center, on the staffs of St Joseph and Immanuel hospitals, died March 28, aged 44

Zuckerman, Louis Herman, New York City, University and Bellevue Hospital Medical College, New York City, 1907, member of the Medical Society of the State of New York, retired chief of the Bronx Bureau of Contagious and Infectious Diseases, New York City Health Department, died in the Flower and Fifth Avenue Hospitals May 13, aged 70, of Parkinson's Disease

FOREIGN LETTERS

AUSTRIA

Early Diagnosis of Tubal Carcinoma—At the meeting of the Austrian Society for Gynecology and Obstetrics in June, J Froewis and H Kremer reported on a patient in whom a definite diagnosis of tubal carcinoma was established by clinical observation and by cytological examination A Halter stressed the significance of a clear amber vaginal discharge in diagnosing tubal carcinoma A 60-year-old woman with postclimacteric bleeding was admitted to the speaker's ward Colposcopic and palpatometric findings were normal, but curettage showed histological evidence of an atrophic endometrium The patient left the hospital A follow-up examination was made six weeks later A typical clear amber discharge and a negative cytological examination were noted Despite the negative findings, a laparotomy was performed because of the presence of a typical carcinomatous discharge Bilateral carcinoma, limited to the tubal wall, was found The tubes were only moderately enlarged, but they were completely occluded St Skamnakis said that, unfortunately, the typical amber discharge is present in only 20% of the patients with tubal carcinoma Unilateral cramp-like pain in the lower abdomen and bleeding are more frequent findings These symptoms, associated with palpable swellings of the adnexa, however, may lead to a false diagnosis of pelvic inflammatory disease and prolonged conservative treatment

Roentgenography of the Breast as Test for Pregnancy—At the same meeting, K Fochem and G Nank said that the female breast shows changes of the tissue, not only during pregnancy but also during the menstrual cycle These changes are histologically characterized by budding of the lactiferous tubules Systematic examinations were carried out during the menstrual cycle and pregnancy The roentgenogram of the normal breast shows a fine, marble-like pattern The delicate ramifications of the septums of the connective tissue include homogenous parenchymatous areas The roentgenographic changes in the breast during the menstrual cycle are minimal During pregnancy, on the other hand, a characteristic thickening of the septums of the connective tissue and clouding of the parenchyma are observed This is of diagnostic importance because the earliest of the changes can be recognized four weeks after conception In 104 patients with early, doubtful, and ectopic pregnancies or with some type of tumor, a definite diagnosis was established in 97 A false-positive reading was made in three patients, in two, diagnosis could not be made because the breasts were too small, and in two, the changes were associated with a corpus luteum cyst Owing to the high degree of correlation, roentgenography of the female breasts was recommended as test for pregnancy

R Bayer said that roentgenographic changes in the female breast ranged from a demonstrable delicate marking in the structure of the connective tissue of the breast in the phase of hormone deficiency (menopausal breast) through an increasing swelling of the corpus fibrosum in the phase of luteinizing hormonal activity of the marked swelling in the breast during pregnancy Knowledge of these changes is important in diagnosing diseases of the mammary glands and of the breast tumors The speaker stressed the fact that temporarily and quantitatively increased hormonal secretions (as in monophasic cycles or in phases of hyperfollicular internal secretion) give findings that are difficult or impossible to distinguish from the roentgenograms of the breasts made during pregnancy The speaker doubted, therefore, that the practical evaluation of roentgenograms of the female breast as a test for pregnancy is possible

COLOMBIA

Tuberculosis in Colombia—At the meeting of the 11th Pan-American Congress of Tuberculosis last May at Medellin, Abad and co-workers reported on the 25 year-old campaign against tuberculosis in Columbia Before 1932 there was no tuberculosis hospital in the country Now there are 2,355 beds in 14 such hospitals It has been estimated that about 20,000 persons have tuberculosis in this republic of nearly 13 million inhabitants In 1945 there were 40 deaths per 100,000 from this cause Ten years later the figure had dropped to 24 8 In 1948 the morbidity was 160 per 100,000 and in 1955 about 100 The highest incidence is found in the 20-to-30-year-old age group, where it is 110 per 100,000, and the lowest incidence is in the 10-to-14-year-old age group, where it is 20 per 100,000 In the over 40-year-old age group the incidence is 80 per 100,000 Clinicoanatomic types of the disease were found to differ quantitatively, depending on where the examinations were made At tuberculosis dispensaries the distribution was minimal cases, 22%, moderately advanced, 34%, and far advanced, 44% At institutions where tuberculosis investigation was compulsory, the distribution was minimal, 40%, moderately advanced, 48%, and far advanced, 12% In Colombian mortality tables, tuberculosis is in the 17th place, but in first place are deaths from unknown causes The authors believe that tuberculosis must undoubtedly be a major component of this category

At the same meeting, Tovar-Acosta of Bogotá read a paper based on 2,674 patients admitted to the Hospital Sanatorio Santa Clara during the years 1952-1956 Of these patients, 87% had tuberculosis Only five patients (0 21%) had had BCG vaccination, 9%

The items in these letters are contributed by regular correspondents in the various foreign countries

mentioned contact with a human source of infection The speaker believed this low figure was due to poor epidemiologic survey methods A positive serologic test for syphilis was found in 5% of the tuberculous patients The symptoms were grossly parallel to the severity of the disease, as classified by the standards of the United States Tuberculosis Association, but there were many far advanced cases with slight symptoms and a few minimal ones with severe symptoms Far advanced disease was found in 53% of the patients, moderately advanced in 31%, and minimal in 16% The symptoms were slight in 23%, moderate in 34%, and severe in 43% These figures are similar to those found in other tuberculosis institutions in this country They show that the diagnosis is not being made early enough Active tuberculosis was present in 80% of patients and positive sputum was present in 61% Lack of natural resistance in Colombians was demonstrated by the prevalence of diffuse lesions in one or both lungs (68%) Both diffuse and localized lesions were more common in the right lung The preponderance of caseous pneumonic lesions (57%) over all others without cavity formation (43%) also indicates a lack of resistance

Complications were encountered in 25% of cases, including 6% laryngeal, 4% pleural, 3% intercurrent diseases, 2% intestinal, and 10% genitourinary and nervous system involvement and others The hospital mortality (24%) could be blamed on poor treatment, but the speaker believes this is due, mainly, to lack of sound preventive measures Treatment has been useless in the 53% of the entire series who left the hospital while their disease was still active

INDIA

Acetazolamide—S N Sen Gupta and co-workers (*J Indian M A* 28 11, 1957) gave acetazolamide by mouth to 43 patients for whom a diuretic drug was indicated Of these, 29 had heart disease, 7 had hepatic edema, 4 had nephrotic edema, and 3 had nutritional edema The daily dose was 125 to 250 mg according to the age of the patient and was given for three consecutive days If the response was good it was continued for four more days Good diuresis developed in 23 patients The response varied in the different groups of patients, 65 5% of all cardiac patients responded well to the drug and 83% of those with cor pulmonale showed improvement One patient besides showing a good diuresis also had relief from anoxic symptoms Of the patients with hepatic edema, only 2 (29%) responded well, 14 patients in the whole series showed toxic side-effects, and 3 of these died in coma Three of these patients suffered from hepatic cirrhosis and one had gross nutritional edema with possible involvement of the liver Twenty-one patients were given a mercurial diuretic parenterally before or in place of acetazolamide treatment for comparison The mercurials were on the whole better diuretics, and their action was probably potentiated by the other drug even when given 48 hours previously The authors concluded that acetazolamide has a definite place in the treatment of heart failure and may be regarded as an alternative or adjuvant to mercurial diuretics in the treatment of this condition, but it is definitely dangerous in patients with chronic liver disease

Detection of Ovulation—P N Wahi (*J Indian M A* 28 12, 1957) stated that their previous study of vaginal smears, endometrial biopsy specimens, and urinary pregnandiol led them to conclude that the changes indicative of ovulatory and anovulatory cycles were clearly observed from the 14th to 26th day in a regular menstrual cycle of 28 to 30 days They therefore believed that a single vaginal smear on the 24th to 26th day would assist in determining the nature of the cycle The presence of urinary pregnandiol may be considered as a direct evidence of progesteronic activity (ovulation) A concurrent study was undertaken of single vaginal smears (premenstrual), endometrial biopsy specimens, and quantitative estimation of urinary pregnandiol from 80 sterile women Cases of primary sterility with a normal menstrual cycle of 28 to 30 days were selected Only one smear was taken on the 24th to 26th day An endometrial biopsy specimen was obtained on the same day, and the chemical estimation of urinary pregnandiol was done in a 24-hour specimen The results showed that ovulatory smears corresponded well with histological findings and pregnandiol secretion in 85 4% of the patients Histological examination failed in 8 3% and cytological examination failed in 2 08% of the patients with an ovulatory cycle In those with an anovulatory cycle, 64 3% of the smears were in agreement with the biopsy findings and urinary pregnandiol Histological examination failed to indicate an anovulatory cycle in 21 4% of the patients, and cytological examination was unsuccessful in 14 3% The authors concluded that the single vaginal smear method offers a fairly accurate method of determining the presence or absence of ovulation The advantage of this method is that it is simple, relatively quick, inexpensive, and can be used on a large scale

Public Health in Mysore—The Minister of Health in Mysore, while outlining his program for the second Five-Year Plan period, said that the best form of rendering preventive and curative services in rural areas was by establishing health units where those two services could be combined With this end in view, he proposed to start 102 primary health units The government accepted the plan of operations drafted by the World Health Organization (WHO) and the United Nations International Children s Emergency Fund (UNICEF) whereby those two organizations would provide two experts in maternity and child welfare and nursing administration and would supply the equipment necessary for various welfare centers in the state The two experts had already reported and were engaged in a survey of maternal and child health services, including pediatrics, available in the state Nursing facilities were also being surveyed WHO and UNICEF had already supplied much equipment Under this scheme it was contemplated to open two laboratories for chemical and food analysis These laboratories would serve not only medical and public health departments but also were open to medical practitioners in the area to facilitate early diagnosis and proper treatment The bed strength in the existing health unit dispensaries was proposed to be increased by 250 beds Five more district laboratories to undertake bacteriological, pathological, and chemical examinations were proposed to be established

Campaign Against Substandard Drugs—The Drug Standard Control in Bombay state continued to make steady progress in the first quarter of 1957 The intelligence branch attached to the Drugs Control Administration was engaged in the investigational work relating to the manufacture and sale of spurious drugs During the quarter under report, 62 investigations were made, 24 prosecutions were launched for various offenses, and 4 convictions were obtained Large quantities of drugs were destroyed because they were not of standard quality Of 1,306 samples tested, 248 were of substandard quality There were 58 licenses for manufacturing nonbiological products, 597 licenses for selling nonbiological products, 45 licenses for manufacturing biological products, and 343 licenses for selling biological products granted during the quarter under review In the same period, 126 applications for licenses were rejected, 86 licenses were revoked, and 112 manufacturing premises and 2,063 selling premises were inspected The additional staff recently authorized for the Drugs Control Administration will help to stabilize the control of drug standards in all parts of the state

Xeroderma Pigmentosum—Behl and Sachdev (*Ind J Dermat Venereol* 23 2, 1957) stated that xeroderma pigmentosum is a rare dermatological entity and they were unable to find any published records of this disease occurring in India They reported three cases which are the first probably to be seen in dark-skinned patients The first was a boy aged 17 years, an only child He started with freckles on his face at the age of 10 years and came to the hospital for a tumor on his face His face, the upper part of his chest, and his hands showed freckles, telangiectasia, and atrophic areas resembling senile skin There was a typical epithelioma on the right side of his nose which proved to be a squamous celled epithelioma A few keratotic nodules were present on his face and chest The second case was a boy aged 11 years who started getting freckles on his face, chest, and forearms at the age of 18 months Later atrophic areas and telangiectasis appeared At the time of examination, his whole body was involved with dark pigmented patches and freckles, stellate telangiectasia, atrophic areas, and keratotic nodules For three months prior to admission an epitheliomatous lesion had been developing on his left forearm His left eye showed keratitis and blepharitis with complete loss of vision This patient is the second of five children The third case was the fourth child of the same parents who since the age of 2 years had had freckles on his face, neck, hands, forearms, and legs A few areas of atrophy and telangiectasis were also present He was 4 years old at the time of examination and no lesion resembling a tumor was seen The first two cases were referred to the surgical department for excision of the epithelioma The prognosis is grave in all these cases

Action of Local Anesthetics on the Uterus—Y K Sinha (*J Indian M A* 29 1, 1957) stated that cocaine and procaine have a stimulating action on the smooth muscle of the uterus He compared local anesthetic action of such other agents as lignocaine and cinchocaine on the uterus All experiments were carried out in vitro The stimulant action of local anesthetics on the uteri of cats, rabbits, and guinea pigs was confirmed This effect seems to be due to a direct action on the muscle, as it is not antagonized by atropine, mepyramine, F 933, or hexamethonium The stimulating effect is reduced by lowering the concentration of calcium ions in the Tyrode solution Thus it may be related to ionic changes in the muscle membrane The stimulant action is not related to the local anesthetic activity Procaine, however, failed to stimulate the nonpregnant uteri of guinea pigs and the immature uteri of rabbits

SWITZERLAND

Symposium on Aldosterone—The University Clinic for Therapeutics organized the First International Symposium on Aldosterone in June The lectures and discussions will be published in detail in a special volume by Churchill Ltd, London Moonlenaar and Querido (Leyden) described a new method for the physicochemical determination of aldosterone, based on the colorimetric reaction of 2-4-dinitrophenylhydrazine with aldosterone The method is reliable and the absolute values correspond to those obtained by the method of Simpson and Tait Neher (Basel) consistently found aldosterone in large amounts in three patients with Conn's syndrome, in one patient the corticosterone level was equally high The content of aldosterone in the adrenal tissue was normal in two patients with Cushing's syndrome, whereas cortisone and hydrocortisone levels were increased Analyzing the tissue of one patient with almost complete necrosis of the adrenals, but with the preservation of the zona glomerulosa, Neher found an abundance of aldosterone This confirms the belief that aldosterone is synthesized in the glomerular zone

Desaulles (Basel) compared the biological effects of aldosterone in adrenalectomized rats with a proprietary glucocorticoid preparation (Cortexone) and hydrocortisone Contrary to the observations in man, aldosterone improved the delayed diuresis of adrenalectomized animals The action of aldosterone on the connective tissue is also different from that of Cortexone The actions of aldosterone resembled, in particular circumstances, more those of hydrocortisone than those of Cortexone Gross (Basel) stated that the maintenance dose of synthetic d-1-aldosterone is 1 7 to 2 times larger than that of the natural aldosterone He concluded that the therapeutic margin of aldosterone is wider than that of Cortexone He stated also that less potassium was lost by treatment with aldosterone than by treatment with Cortexone Furthermore, aldosterone produces hypertension only when the doses are relatively much larger than those of Cortexone. Giroud (Montreal) reported that, in a series of experiments in vitro, aldosterone is essentially produced in the glomerular zone in rats and oxen, whereas hydrocortisone is synthetized in the fascicular zone and corticosterone in both. Extracts of the anterior lobe of the pituitary stimulate chiefly the production of hydrocortisone whereas those of the posterior lobe have a marked influence on the secretion of aldosterone. Pure vasopressin and oxytocin are inactive. A contaminant must, therefore, be contained in these extracts.

Simpson and co-workers (London) studied the metabolism of aldosterone marked with tritium (H^3) in position 16. Aldosterone appeared to be more rapidly metabolized than hydrocortisone. The authors believe that the daily secretion of aldosterone is about 200 Gm. They found aldosterone in the urine in an easily hydrolyzable form at pH 1. At present, the structure of the conjugate of aldosterone is unknown, but preliminary experiments suggest a conjugation with a sulfate in position 18 or 21. This product, however, corresponds only to 5% of the amount of aldosterone produced daily by the organism. Bartter (Bethesda, Md.), stated that he produced variations in the intravascular space in experimental animals either by infusions of concentrated albumin or by repeated bleedings. The variations of aldosteronuria observed supported the hypothesis that changes in the intravascular space regulate aldosterone production. These same changes seem also to influence the aldosteronuria in the cases of secondary hyperaldosteronism. Muller (Geneva) had studied the daily aldosterone cycle in normal subjects. The elimination of aldosterone, which is increased during the day, depends essentially on the upright position and the daily activity. The deposit of sodium does not seem to influence the nyctohemeral cycle of aldosterone production. Patients with a hypophysial deficiency show daily rhythmic aldosterone fluctuations in the level only when given cortisone and when erect and active.

Garrod (London) stated that adrenal hypertension and motor paralysis are predominant symptoms of Conn's syndrome. All the patients had hypokalemia, hypernatremia, alkalosis, polyuria, hyposthenuria, and alkalinuria. Histological examinations of the kidney revealed vacuolation of the renal tubules. The secretion of aldosterone is variable, but hypokalemia is generally associated with extremely low aldosterone levels. The absence of edema remains a mystery. Stanbury (Manchester) reported that hypokalemia leads to renal insufficiency and, on the other hand, renal diseases may be complicated by hypokalemia. Renal insufficiency may become worse if associated with a depletion of potassium. Primary aldosteronism as well as Cushing's disease may produce hypokalemia associated secondarily with renal insufficiency. Depletion of sodium in patients with renal insufficiency produces, in its turn, secondary hyperaldosteronuria, which makes the depletion of potassium worse. Mach (Geneva) discussed a 37-year-old woman with idiopathic edema associated with hyperaldosteronuria. He was able favorably to influence the clinical course by repeated water overload. Wolff (Munich) stressed the disastrous effects of physical exercise on the retention of sodium by the increase of aldosterone in patients with secondary hyperaldosteronism associated with hepatic cirrhosis and cardiac insufficiency. When the cardiovascular condition is improved by rest and cardiotonics, aldosterone production decreases and the edema disappears.

UNITED KINGDOM

Tuberculosis in Pathology Laboratory Workers.—Tuberculosis as an occupational hazard of pathology laboratory workers was investigated by Reid (*Brit. M. J.* 2:10, 1957). Although the possibility of aerial dissemination of micro-organisms from sectioned pathological material has been demonstrated, the ultimate test is the demonstration of a higher incidence of tuberculosis among those working in pathology laboratories than among other comparable groups of workers. Reid first analyzed the claims for sick pay under the Health Service and found that pathologists, like thoracic surgeons and chest physicians, had claim rates for incapacitating pulmonary tuberculosis in excess of those of other medical workers and that laboratory technicians had much higher rates than other medical auxiliaries. Because of possible fallacies in interpreting the data Reid investigated the incidence of tuberculosis among the staffs of 345 laboratories in the Public Health Laboratory Service over a period of five years. It was found that the incidence of incapacitating pulmonary tuberculosis was, for different laboratory categories adjusted for age and sex, two to nine times greater than the corresponding rates in the country as a whole. The rates for pulmonary tuberculosis among pathologists and technicians were found to be two to three times greater than those of post office workers of similar age and social and economic status.

The highest rates occurred among workers employed in laboratory and mortuary tasks exposing them to the risk of contact with infected material; the incidence was highest in the second and third years of employment. In these groups the attack rate was three times that of nonexposed laboratory staff. Preemployment examination showed that young laboratory recruits had no unduly frequent previous contact with tuberculous subjects. The possibility was investigated that these high tuberculosis morbidity rates were due to factors such as overcrowding, poor physique, and better reporting than elsewhere, but these factors were not found to be significant.

Another study suggested unexpected sources of tuberculous infection in laboratory workers. Tomlinson (*Brit. M. J.* 2:15, 1957) showed that infected air-borne particles are released when screw-capped bottles containing slant cultures are opened. This is probably due to the film of fluid round the rim of the bottle becoming contaminated when the culture is inoculated. Bacteria then grow in this site during incubation and are released in a shower of fine infective particles when the bottle is opened. Another source of infection occurs when screw-capped bottles are centrifuged. This results in contaminated spray being spread over a distance of 3 ft. or more from the centrifuge. Other possibilities of infection are spray arising from incised tuberculous material and the cage dust of tubercle-infected laboratory animals This suggested that exposed laboratory staff should be tuberculin tested and BCG vaccination offered to negative reactors, that periodic roentgenograms of the chest be taken, and that potentially infected material should only be handled by experienced staff members under a well-ventilated hood

Professional Secrecy —The traditional policy of professional secrecy is likely to be reaffirmed at the British Medical Association's annual meeting at Newcastle-upon-Tyne Prof A P Thomson points out in the July issue of the *Practitioner* "In a hundred years no allegation of infamous conduct involving a breach of the rule of secrecy has ever been brought to the General Medical Council' If, however, a physician discovers evidence that warrants serious suspicion of murder or rape, he should, unhesitatingly, disclose it to the police because he has a duty to society as well as to his patient Attempted poisoning should be reported Unfortunately, a poisoner is rarely convicted on account of evidence obtained in the case of his first victim It is not the duty of physicians to assist the police in the detection of minor offences If, after a drunken brawl or other disturbance which has not entailed loss of life, the police are searching for offenders, it is not required that physicians report injuries which suggest that the patient has participated in the disturbance

Dr L J Witts says that the ban on the use of physicians names in television and radio broadcasting cannot be supported, although it is part of the present policy of the General Medical Council and the B M A Fan mail rarely includes requests for consultation Most correspondence after broadcasting comes from the lunatic fringe The public has no use for anonymous information B M A resolutions do not bind the profession, but physicians who break them are placed in an uncomfortable position

Independent Health Service Proposed —An independent British medical service was outlined at the British Medical Association's annual meeting It may be an alternative to the National Health Service or work side by side with it The scheme put forward by Dr H H D Sutherland consisted of the following proposals 1 The service should be free from political party control 2 It should be financed partly by contributions by the patient, partly through insurance, and partly by the government 3 It would provide certain specified life-saving drugs free, other medicines would be paid for by the patients 4 Participating physicians would have the right to engage in private practice This would be encouraged by the existence of a list of free life-saving drugs and necessary dressings 5 Physicians would possibly be paid on a fee-for-service basis 6 The service should be under the control of a politically independent board or corporation responsible to the privy council 7 Provision should be made for care of the old and poor without their having to pay Summing up the advantages to the public, Dr Sutherland said there would a reduction in cost to the nation and a consequent uction in the income tax There would be greater freedom of choice of physician, an improved patient-doctor relationship, and a greater sense of responsibility in patients Such a scheme would take at least five years to introduce

Tranquilizers Causing Anxiety —Physicians, worried about the possible coming of the perfect tranquilizer, warned of its probable evil social effects at the scientific meeting of the British Medical Association Even the existing tranquilizers carry many dangers, including sudden death and various complicating illnesses Dr E H Kitching, of Manchester, told of the American druggist who had to put up a "sold out" sign He had run out of tranquilizers and the queue outside his shop had to be sent away Tranquilizers are big business They have become a social habit in some com munities In 1956, American druggists filled about 30 million prescriptions for these drugs, compared with 10 million the previous year, 50,000 million tablets of one popular tranquilizer were sold in 1956 Physicians are finding that the performance of these drugs is much inferior to the claims made for them In a survey of 8,200 patients with anxiety states, physicians reported that the benefit produced by tranquilizers was small compared with the dangers There have been four deaths, including two suicides One in five patients was made worse by taking the drugs It was rare for patients to feel better beyond the first week or so Dr R Orton, of Newcastle, said there was a difference in the reaction to these drugs in men and women Women, especially if they used tranquilizers for long periods of time, gained much weight

Dr Louis Minski said that the danger of the perfect tranquilizer would be that the patient would be prepared to accept anything The sexual pervert taking it would have no sense of guilt, married couples living in slums and overcrowded quarters would accept the conditions and children would be brought up in them Prof Charles Robb, of London, said the best tranquilizer of all is whisky It is an extremely good drug for reducing postoperative pain and helping patients to sleep

Physicians Oppose Drugs for Blood Pressure —Sensible living is the way to avoid dying from high blood pressure This was the advice given by a panel of experts at the British Medical Association's scientific meeting at Newcastle-upon-Tyne So called miracle drugs are not the answer Physicians should stop frightening peo ple Most patients with high blood pressure have no need for fear, but fear can aggravate their condition Dr Robert Coope, of Liverpool, said that the "normal sheep" could not be separated from the "hypertensive goats by a couple of numerical readings Most people with asymptomatic hypertension will be alive at 65 years of age or more Even where there are such complications as minor strokes, the giving of drugs is often a substitute for proper care of the patient The man consumed with ambition, the one who burns his candle at both ends, should learn some practical philosophy and accept his limitations Dr John Hunt, secretary of the College of General Practitioners, said the family physician should reassure the patient by pointing out that hypertensives live 20 or 30 years and that one-third of them die of something quite different

The patient has to adjust himself to his high blood pressure as others have adjusted to various handicaps There should be more sleep and quiet week ends without too much strenuous exercise He lets his patients eat as much red meat as they like There is no evidence that this increases the blood pressure There is one antifear drug that has been known to man for centuries —alcohol A glass of sherry or a whisky and soda before dinner, or a nightcap, is an accepted social custom and does not make a man feel like an invalid The speaker did not believe that we are living in an age any more dangerous than those that have gone before, but the regular consumption of drugs, seducing people into a bogus tranquility in the midst of a crazy sort of life which they refuse to change, is at the root of most of our troubles Prof John McMichael, of London, said muscular activity tends to reduce blood pressure and that exercise in moderation is a good thing for hypertensive patients

WORLD HEALTH ORGANIZATION

Poliomyelitis —The Expert Committee on Poliomyelitis met in Geneva in July Under the chairmanship of Sir Macfarlane Burnet (Australia), it has come out strongly in favor of large scale trials of a new vaccine prepared from a living virus which has been attenuated so that it is no longer capable of causing the disease although it may be expected to provide lasting protection against it The live-virus vaccine can be given orally instead of being injected Preliminary trials of this vaccine carried out by several different research teams have failed to reveal any signs of illness or other harmful effects either in the persons vaccinated or in members of their families The experts consider, therefore, that the vaccine may now safely be given larger-scale trials

They do not, however, suggest that this vaccine should displace the Salk type of killed-virus vaccine in those countries where it is now being used or is about to be used They believe rather that the new vaccine should be an adjunct to the present vaccine, though it might eventually replace it if that is found desirable or be a substitute for it where the use of the Salk vaccine is not feasible If the proposed trials of the live-virus vaccine prove successful, it is hoped that the immunity it provides will be reliable and long-lasting and will result in the elimination or at least in a substantial reduction of the virulent strains of virus in circulation at present The present killed-virus vaccine cannot achieve this kind of result The committee emphasizes, however, that the most stringent precautions should surround proposed trials of the new vaccine In order to prove its complete harmlessness it should first be given to limited numbers of selected groups of persons Furthermore, the properties of the attenuated strains of virus used in the vaccine should be measured in a number of different laboratories These trials should be accomplished on a voluntary basis and with the approval of the local authorities concerned The object of the proposed trials of live-virus vaccine and the need for carrying them out are based on the belief that they may go far in further reducing the prevalence of poliomyelitis in the world

Experience with Salk Vaccine —The committee also reviewed the experience gained in those countries where killed-virus vaccine has been used In France vaccination was not officially started before June 1, 1956 Several million doses were released, but, since most of them were exported, a close follow-up of results will be possible only for about 800,000 vaccinations Of these, 100,000 had been given up to July 1, 1957, with negligible side-reactions In Poland, the average mortality from poliomyelitis in the years 1951 to 1954 was 6 3% of the reported cases More males (55%) than females (45%) caught the disease, and the highest incidence was in the group infancy to 4 years of age (78% of all cases) In 1957 Poland began to produce the vaccine, and in October it is planned to vaccinate 100,000 children in Warsaw and Lodz

In Great Britain vaccination has not offered complete protection against poliomyelitis, as some cases of paralytic disease were observed in vaccinated children After the incidents which occurred during the first large-scale vaccinations in the United States, the authorities decided to manufacture a modified form of the Salk vaccine, the type 1 Mahoney strain of virus being replaced by a less virulent one In Canada, the lower incidence of poliomyelitis in the last two years has made it difficult accurately to evaluate the results of the vaccination program In 1956, 11 cases of paralytic poliomyelitis were reported among a total of 1,860,000 vaccinated children and 136 cases in 2,140,000 unvaccinated children of similar age In Southeast Asia the incidence of the disease has remained low Cases among the adult population are almost unknown except among foreigners In the United States, 15,400 cases occurred in 1956 This represents a rate of 9 2 per 100,000 population and is the lowest recorded since 1947 Because of the wide annual variations in incidence, it has not been possible definitely to attribute the low incidence in 1956 to the widespread use of vaccine (70 million persons were vaccinated) In Israel all children from 6 months to 3½ years of age were vaccinated between January and May, 1957 This was done because it was found that over 80% of paralytic cases occurred in that age group Among emigrants up to the age of 40 years from Western Europe and the Americas it was possible to vaccinate 130,000 persons

In the Union of South Africa vaccination campaigns began in 1955 and were continued through 1956 and 1957 During this period the country experienced a prolonged and severe epidemic, which, for the first time, affected Africans as much as people of European descent, but among the Africans the disease affected young children for the most part, while in the Europeans older children were also affected and there were many cases among adults About 500,000 children have been vaccinated In Russia there was a distinct rise in the incidence of the disease in 1955 (8 cases per 100,000 population) Available information indicated no reduction in 1956 or 1957 Young children under 7 years of age were most affected (85% of cases) In the spring of 1957, 80,000 children were vaccinated In Sweden large-scale vaccination campaigns were begun in February, 1957, and 800,000 persons have been vaccinated No cases of poliomyelitis after inoculation have been reported

LAW DEPARTMENT

MEDICOLEGAL ABSTRACTS

Malpractice Statute of Limitations—The plaintiffs, husband and wife, filed an action for damages caused by the alleged malpractice of the defendant physician From a judgment in favor of the defendant, the plaintiffs appealed to the district court of appeal second district, division 3, California

On June 15, 1952, the wife was injured in an automobile accident She had been under defendant's care for about two years for a suspected gallbladder condition, and shortly after the accident she again engaged the defendant s services She was placed in a hospital on three occasions, but at no time during the course of treatment did the defendant treat her for injuries suffered in the accident From the time after the accident until the following January the plaintiff wife suffered from extreme pains in her head, dizziness nausea and impairment of vision The defendant, however, attributed this condition to ailments from which she had previously suffered Although x-rays were taken, they did not suggest to the defendent that the condition that was causing the wife s suffering was an accumulation of fluid that was creating brain pressure and injury to the optic nerves The physician-patient relation between the plaintiff wife and the defendant was terminated Jan 6, 1953, and on defendant's recommendation, she then consulted Dr Seletz who informed the plaintiffs on Jan 9 that there was an increased pressure within the wife s head due to a head injury and that he feared it was a surgical condition but one he believed he could remedy On Jan 17, Dr Seletz told the plaintiffs there was another test (an air study) that should be made and that this study would not be made without an understanding beforehand that if, in his opinion, surgery was indicated he had permission to proceed immediately The plaintiffs agreed When the wife entered the hospital on Jan 17, a writing was prepared which stated in part Mrs Jewell Calvin, Dr E Seletz, subdural hematoma—preoperative diagnosis, possible subdural hematoma " Dr Seletz testified that the diagnosis was written by him and that he signed the paper The plaintiffs signed a paper which read, in part "preoperative diagnosis, possible subdural hematoma" This was over the signature of Dr Seletz On Jan 19, the wife signed a paper which read, in part "operation and anesthetic record preoperative diagnosis, shaving of head" The wife testified that the papers were signed by her in blank The papers containing the diagnosis however, stated that the signers certified that the diagnosis was written in before the operation and Dr Seletz testified that he wrote in the diagnosis, that he never operated without writing in the diagnosis, and that to the best of his knowledge it was written in before the plaintiffs' signatures were attached The present action was filed Jan 28, 1954

The defendant contended that the action was barred by the one year statute of limitations The plaintiffs, however, contended that the evidence was not sufficient to sustain the finding that they had knowledge of the facts constituting their cause of action more than one year prior to the institution of the action The evidence showed that the information conveyed to the plaintiffs by Dr Seletz before and after the operation was such that they must have known that the defendant had not made a correct diagnosis nor given the wife the care her condition required The plaintiffs did not deny that Dr Seletz made it clear to them on Jan 19 and 20 that the defendant had made an incorrect diagnosis The statute began to run when the plaintiffs acquired knowledge of the facts constituting their cause of action The physician-patient relation was severed prior to that time and the defendant did nothing thereafter to interrupt the running of the statute or to estop him from relying on it In the opinion of the court of appeals, the trial court could not reasonably have found that the plaintiffs did not have knowledge of the facts constituting their cause of action as early as Jan 19, 1953 Since the action was not filed until more than a year later (Jan 28, 1954) it was barred by the statute of limitations Accordingly, the judgment of the lower court in favor of the defendant physician was affirmed *Calvin v Thayer, 310 P (2d) 59 (Calif, 1957)*

Chemical Tests for Intoxication Self-Incrimination—From a conviction for driving a motor vehicle while under the influence of intoxicating liquor, the defendant appealed to the criminal court of appeals of Oklahoma

The defendant testified that, following her arrest, she was taken to a room in the police station where she was told to blow her breath into a balloon, to walk a line, to pick up some coins, and to perform other manual tests She said that she thought she had to do everything the officers told her to do because she was under arrest She testified that the officers refused to allow her to make a telephone call for advice, failed to tell her of her right to counsel and to refuse to do the things demanded, and did not advise her that the evidence could be used against her The prosecution offered no evidence to rebut that of the defendant The court said that a confession of a defendant shown to have been induced by hope or promise of benefit or through fear is involuntary and inadmissible The defendant's evidence that she performed the tests because of fear was not denied and must be given full credence The tests were, therefore, not voluntarily performed

The defendant contended therefore that the admission of evidence as to a drunkometer test and the other involuntary tests denied her the privilege against self-incrimination guaranteed by article II, section 21 of the Oklahoma constitution The privilege against self-incrimination, said the court, was established in the common law to protect the individual against the employment of legal process to extract from his own lips an admission of his guilt The cases from the various states are uniform in holding inadmissible self-incriminating words forced from the lips of an accused or forced incriminating writings, but they are not uniform as to evidence obtained by use of bodily fluids of an accused gotten either while he was unconscious or when he was conscious but against his will Likewise as to other forms of physical evidence The reason for the rule that distinguishes between "real and "physical' evidence is that where evidence is elicited from the lips of an accused or by writings, where such evidence is given either in fear of punishment or in hope of escaping punishment, such evidence is not admitted because experience shows that the accused is liable to be influenced by these motives, and such evidence cannot be relied on as guides to truth This objection does not apply to evidence of the nature complained of in the present case, because no hopes or fears of the accused could change the physical facts one iota The court therefore held that the admission of evidence as to the involuntary tests did not violate the defendant's privilege against self-incrimination

The defendant also contended however that it was error to allow the officer who performed the drunkometer test to testify as to the results of the Harger color change test, which he obtained from reading the gasometer cylinder of the drunkometer, because he was not an expert in chemistry and was unable to independently work out the formula involved In a prior Oklahoma case it was held that for the results of the tests to be admissible there should be the following (1) proof that the chemicals were compounded to the proper percentage for use in the machine, (2) proof that the operator and the machine were under the periodic supervision of one who has an understanding of the scientific theory of the machine, (3) proof by a witness who was qualified to calculate the reading of the machine into the percentage of alcohol in the blood The officer performing the test did not meet the third requirement, but that link was supplied by a physician who qualified as an expert This expert testified that a person having the amount of alcohol in his blood that the defendant had would be under the influence of alcohol

It must be recognized in giving the tests for the alcoholic content of the blood that the color-change test of both the Harger drunkometer, and the intoximeter (Forester) used by the highway patrol and mentioned by the defendant, require no knowledge of chemistry or mathematics, nor is it necessary to understand the meaning of the operations in order to obtain the percentage of blood alcohol reading But it does require a chemist to make the further tests where the dehydrite tube and ascarite tubes are used in case of the drunkometer and magnesium perchlorate tube and the ascarite tube in case of the intoximeter And it does require an expert witness to testify as to the meaning of the readings That was done in this case Certainly the drunkometer could not be cross examined as to the reliability of the reading, but there was ample opportunity to cross examine the operator as to whether an unused balloon was used for trapping the breath, whether the pipet for measuring the potassium permanganate and the separate one for measuring the sulfuric acid were clean, and whether the rubber tubes connecting the various parts were leak-proof, etc It was only necessary to determine that the machine was in working order, that a careful reading was made, that the exact amount of chemicals was measured out, that the air was shut off at the instant the color change took place, and, after a course of instruction, that the operator was qualified to make the test in question All this was done, also

The court pointed out that it was not holding that a drunkometer test, standing alone, would be sufficient to sustain a conviction Persons who observed the defendant following her arrest testified that in their opinion she was intoxicated There was also testimony that she staggered off the straight line all four times she tried to walk it and that she had great difficulty in picking coins up from the floor When given the Romberg test she swayed very badly The court concluded that there was ample evidence to support the verdict of the jury The judgment of conviction was accordingly affirmed *Alexander v State, 305 P (2d) 572 (Okla, 1956)*

Malpractice Patient's Fall from Examination Chair — This was an action for damages for injuries caused by the alleged negligence of the defendant physician The trial court sustained the defendant s general demurrer so the plaintiff appealed to the court of appeals division 1, Georgia

The plaintiff suffered an eye condition which resulted in a partial loss of sight and went to the office of the defendant physician for treatment In treating the plaintiff for the condition, the defendant had her sit in a chair which could be raised or lowered as desired After placing a medicament in the plaintiff's eyes, he raised the chair and left the room After having been left alone for about 30 minutes, the plaintiff attempted to get down from the chair, tripped, and fell It was the plaintiff's contention that the defendant, knowing she had defective eyesight, was negligent in leaving her unattended, in a dangerous and exposed physical position, and in failing to warn her against attempting to get down from the suspended position without assistance

Section 84-924 of the Georgia Code requires a physician to use reasonable care and skill in the practice of his profession, and ordinarily the question of whether a physician has used that degree of skill is a question for the jury However, said the court, where from the allegations of the plaintiff's petition it is palpably clear that the injuries complained of were not caused by the failure of the physician to use reasonable care and skill but rather from the independent act of the plaintiff, the question should be decided as a matter of law where a timely general demurrer has been filed The judgment of the lower court was accordingly affirmed *Robinson v Campbell, 97 S E (2d) 544 (Ga, 1957)*

MISCELLANY

AMERICAN MEDICINE ABROAD—TANSEN, NEPAL

Lou Hazam

This is the third of a series of on-the-scene reports from the "March of Medicine" production team, which is traveling around the world to film an hour-long television program on the work of American doctors abroad—the services they perform, the conditions they face, the personal satisfaction they receive in their unofficial roles as America's medical diplomats The author, Mr Lou Hazam, has written all but one of the "March of Medicine" scripts since the series started in 1952 In this article, he tells of the dedicated work of Dr Carl Friedericks in Tansen, Nepal Also on the "March of Medicine" itinerary are such places as Hong Kong, Sarawak, Burma, Korea, India, Ethiopia, Lebanon, Turkey, and Guatemala The program, sponsored and produced by Smith, Kline & French Laboratories in cooperation with the American Medical Association, will be seen in color next spring over the NBC television network —Ed

There is a good chance that we have found the American doctor who is serving in the most remote and inaccessible region of the world We believe that that doctor is Dr Carl Friedericks whom we visited in Tansen, Nepal

North of India, in the towering foothills of the earth's highest mountains, the Himalayas, Dr Friedericks cannot be reached by plane, train, car, or boat—but only by days of the most arduous climbing over steep and primitive mountain trails, fording streams, and crossing plains two days, at least for the uninitiated, from the small, thatch-roofed town where the last conveyance, a rickety bus, deposits you

First, to come by the route we followed, one must fly over the chain of mountains known as the Maha Bharat range to reach the capital of Nepal, which is Katmandu This is an experience in itself Recently, when late out of Burma I sought to rejoin the Smith, Kline & French March of Medicine" crew which had already preceded me there, it called for rising at dawn in Calcutta, boarding an Indian Airlines plane, and setting out for an ancient crossroad of civilization, dating back to the time before Christ, known as Patna Here the idea was to board another plane for Katmandu In the sweltering heat of the airport, one waited three and a half hours for this departure, and finally—piloted by two handsome bearded Indian pilots—took off and pointed to the north

What followed was, in a sense, a bright nightmare All went well until we reached the mountains that since the dawn of man had stood as a formidable barrier between India and its neighbor In vain did the pilot, skirting between the towering cliffs, seek to find his way over them, only to be frustrated by the mist that overhung them, hiding the highest peaks He circled and tried again and again, to no use Finally, he turned and made his way to an "airport" nearby [illegible]? It was a flat field, with no runway, covered by solemnly grazing cattle Undeterred, the pilot put his plane down with a jolt, as the cattle, frightened by the noise, ran for cover as we rolled in the direction of a thatched adobe structure that I supposed was the "terminal"

The faces of the people who quickly collected were strange and fascinating We remained there for about 10 minutes, and then, as the rain began to fall in huge droplets, the pilot cried "Let's go!" It was easy to understand why, for if we stayed much longer we would be mired in a sea of mud and never be able to take off Quickly he pulled out the stones he had placed under the wheels of the plane, and with a roar we were air-borne again

This time it was clearing "upstairs" The plane banked in the direction of the mountains that loomed ahead and we now were apparently going to challenge them In a moment they were on either side of us ridge after ridge rising far above the wings of the plane in a succession of obstacles Picking out a sort of valley path, the pilot wound his way through them, turning a corner occasionally and entering another pass, as all the while there unfolded all around us the most striking scenic grandeur—a splendor that was so all-enveloping, that one forgot to be afraid At last we came over terraced slopes, planted to their very peaks, and then with a swoop we were over the major valley the fertile plain, once a lake bed, on which the capital city of Katmandu had stood for centuries, and now appeared to come rushing toward us

This much, compared to what was to follow later, was nothing Only I did not know it then Plans had already been made to depart for Tansen the following morning to film the medical work of Dr Carl Friedericks I had arrived just in time to secure a visa and join the party (Yes, in Nepal one needs a visa to move from the Katmandu region to another part of the country In short, one needs a visa to travel within the borders of the same country!) Preparations were significant Food, water, bedding, mosquito nets, guide—all had to "laid on" before venturing forth into the very special world that lay ahead I stood innocently by, suspecting nothing We were to divide our crew Two were to remain behind—Charles Paulton, our sound engineer, for lack of batteries and the difficulty of hauling his equipment in any case, and Mike Oppenheimer, our associate producer, to clear the way for future travel Making the trip to Tansen were to be David Lowe, our producer, Ian Struthers and Geoffrey Gurrin, cameraman, and myself

Next day, again at the crack of dawn, we took off from Katmandu for Pokhara Once more—this time seated on bucket seats, the baggage piled at our feet—we rose from the valley which soon spread out below us and headed for the hills, which gradually grew more forbidding After 30 minutes or so we reached and put down at Pokhara to deposit passengers and take on others, plus more baggage Again the heat—suffocating In a short while we emplaned once more, and this time, once we were up, the mountains put on a real show!

Apparently what we had been referring to as mountains before must have been merely giant molehills For suddenly the clouds cleared, and there behind the highest dark range towered the hugest snow covered peaks I had ever seen . . . monster-sized mountains that sent a wave of excitement through the whole plane.

‘There, look quickly,’ cried the steward. “Annapurna!”

Annapurna—26,492 ft. high! Was not this the mountain that struck fear into the hearts of even the most courageous mountain climbers? I wondered what madness had brought us anywhere near it, and while I tried to enjoy the view as long as it lasted, I was somewhat relieved when the clouds pulled their first-act curtain over it again.

And now we were at our last plane stop, Bhairahwa. Here was a village with the faint shadow of a road snaking away from the airport. We were still miles from our starting place, and what was needed now was a bus to carry us as far as it could, i.e., as far as roads went, before we set out by foot. Fortunately, Dr. Friedericks had received news of our plans by government wireless from Katmandu. An emissary, Earl Schmidt, long, strong, and lanky, showed up with a bus which must have been discarded by the Smithsonian Institution as too old, dating back most certainly to the beginning of the motor age. We piled in, not without doubts, and after some hand-cranking and motor coughing we set off with four drivers! (I learned en route what they were for. One cleared the road of stony obstructions and tested the bridges, another constantly ran ahead to the nearest stream of water to fill the radiator, and the third spelled the driver and kept the motor lubricated with oil.)

It was a journey none of us will ever forget, and its end was as full of surprises as its beginning. For the village at which we ultimately found ourselves was huddled at the foot of mountains that almost surrounded it. Here in Butwal we were to move our luggage from the bus to the backs of porters, mountain climbers almost from the day of their birth.

To see these wiry men pack, to watch them lift the huge loads to their backs, supported by a strap that passed over their foreheads, and then actually bend under the load and walk with the pack intact, left us all weak. So began the trek.

Never, as long as memory remains with us, will the two days that followed be lost to our family and friends. We were all city-born, desk-broken. To walk even to our cars was an effort. Now we were taking on mountains. The land rose gradually at first, then abruptly. Carefully we picked our way along, armed against the heat by big black umbrellas we had thoughtfully purchased on the way. In a matter of moments we left the last semblance of town behind us and were now enveloped, as the home-sitting poets put it, in the arms of nature.

And such arms! Stones the size of houses . . . paths suitable only for mountain goats . . . deep gorges . . . rushing mountain streams to be forded . . . and inevitably ahead, more of the same . . . and always up . . . up. Worn and weary beyond previous experience, the first night on the trail we spent in a rude hut where a nice woman, decorated by rings in her nose and gold jewelry in her ears, made us a Nepali dinner—hot as the chili of Mexico. We stretched out on mats under mosquito nets and slept until dawn.

Again we continued on, crossing another high ridge that called for not looking over the side while we walked. The scenery must have been beautiful, but with our eyes mostly on our feet, we missed a great deal of it. At one point we were met by a groom and horse, sent to us by Dr. Friedericks. We took turns with this sure-footed animal, and in time hired the services of two more we came across in a mountain village preparing to make the crossing with sacks of rice. As the day wore on, again and again we paused for breath and water. We used a Swiss filter pump to make the water drinkable and chlorine pills to kill the bacteria.

We finally entered a great plain planted with rice. Here and there a farmer urged on his water buffalo, pausing only momentarily to stare at the strange procession that passed him. At last, there loomed before us, still some miles ahead, the city of Tansen, hugging the mountainside in the distance. At first we despaired, then took courage and moved on—not with “renewed vigor,” however, for we had little vigor left. We camped at the base of the final hill and rested for an hour. And then we turned to face the last hurdle, an incline that appeared to rise straight up at a 90 degree angle.

It was our great good fortune that, when we had barely begun to climb this hill, Dr. Friedericks, astride a grey horse, appeared with a shout and a hello. A true gentleman, he dismounted—after our greetings were over—and insisted on one of us taking over his animal as he himself walked alongside. It did not take much persuading.

The above saga is recounted here simply to demonstrate the remoteness of the place that Dr. Friedericks has chosen to practice medicine. Now as to the man himself.

Carl Friedericks calls Reading, Pa., home. He is 36 years old and graduated the University of Pennsylvania Medical School in 1945, under the wartime accelerated program. He interned at the Robert Packer Hospital at Sayre, Pa. After a short jaunt with the Army (“I'm afraid my Army service was plush. I only fought the battles of New Jersey, Texas, and California.”), he went to China on October, 1947, to Canton and Yeoung Kong as a medical missionary. By June 24, 1950, he was out again.

“The Communists had come in the previous October—nine months before,’ he said. “It was just obvious that I was a handicap to the people. In addition to the personal danger that seemed to threaten, I was lonesome for my family that I had sent out earlier—to Korea to be safe! And being American, I was a source of embarrassment to my friends and hospital staff—it was becoming difficult for them to deal with me.”

And so Dr. Friedericks moved from China to India, where he remained a year and a half. During this time, he took his first trip to Nepal with Dr. Robert Fleming, an ornithologist who had been there previously on a bird-collecting expedition for the Chicago Natural History Museum. It was while he was on this trip that he saw the tremendous needs of the people medically. Several influential citizens requested him to start a hospital there. Application was made to the government, and when he returned to the States again in April, 1952, the matter was jointly considered and approved by the Presbyterian and Methodist missions He came back to stay in June, two years later, under the auspices of the newly formed United Mission to Nepal

'I had some small equipment I brought up with me," he recollected for us "I ordered some other supplies and some medications, and while that was in the process of coming (it takes things three months to get here) I had a little bit of stuff—plus a microscope or two—to get started with"

'What did you do to start?'

"I collected some boys, the equivalent of our high school students, and a compounder, who corresponds somewhat to our pharmacist at home, and began training them in the basic sciences and in rudimentary nursing procedures, including training in laboratory techniques and public health Later on my first missionary nurse came and took over the training in nursing We opened for business the first of September, 1954"

Hospital and home for Dr Friedericks was a rented building—"the biggest building in town with water on tap'—with which he was making do until a new hospital he was building of adobe brick was completed His practice?

"Routine clinical practice plus some surgery I've taught my compounder how to give anesthesia"

The people had practically no experience with modern medical practice until the doctor arrived—especially surgery From Gorakhpur in northern India, 80 miles away, to Tibet and beyond (who knows?) there was no modern hospital service available to them before

His patients represent a cross section of the community Magars, village folk, Newars, early town settlers, Gurungs, Gurkhas, the warrior class, Brahmins, the highest caste, and occasional Tibetans They are extremely conservative, and the later arrival of an English lady physician, Marjorie Foyle, helped considerably in treating the female patients (When we were there, Dr Foyle was in India on leave)

We asked the doctor what diseases seemed most common in his area

"Our major problem, as in most of Asia, consists of infectious diseases of all kinds We have widespread cases of amebic dysentery Tuberculosis is another serious problem—all kinds of tuberculosis We get malaria cases from the valley below, but rarely from our immediate region We also see cases of roundworms and hookworms and other intestinal parasites a lot of general infection of wounds, that become infected due to neglect and the usual injuries—people kicked by horses, or falling from trees, etc"

'Surgery?'

'Bladder stones are very common Intestinal obstructions, sometimes Quite a bit of bone surgery And skin graft work, too since they commonly build fires on the floor and let the children play close by unattended But I've had only one appendix case since I've been here!'

He took us down and showed us the hospital itself It was a 10-bed hospital occupying the first-floor area ist below the doctor's living quarters Its appointits were very primitive It was strictly a case of e-do, the best one can until the new hospital is ready Empty oil tins served as bedstands Rough wooden frames, webbed, formed the beds Lights were kerosene lamps, when they needed to be pressed into service, for every drop of oil was precious, having to be carried by foot over the same mountains and plains we had traveled He was proudest of his x-ray machine, and the gasoline-operated generator he turned on when he wanted to use it We saw the following patients A very badly burned man who had run into a blazing house to save his goods, a severe case of hookworm and tuberculosis of the bone, combined, a case of severe dysentery, a boy of about 10 who had broken his arm in a fall, and a case of Kala-azar "black fever'—a parasite disease, carried by the sandfly, in which the spleen and liver are affected and become enlarged

Later I accompanied the doctor on a house visit, which he makes rarely for lack of time We found a member of the family waiting for us outside the door We saluted him by placing the palms of our hands together and raising them to our face, and entered, mounting a flight of stairs

"This family is comparatively well-to do,' explained the doctor as we went up We took off our shoes at the open entrance of the room and went in The patient, an elderly woman, was lying on a mat on the floor There was no furniture about The doctor squatted down, and after hearing from patient and family, examined the mother

"There's an obstruction of the urethra," he said "I'll have to have her over to the hospital to do any good

He made this clear to the patient and the assembly, and as we prepared to leave they brought in a younger woman who had had a tooth removed The doctor soon learned that she had apparently been given penicillin to which she had had a reaction The doctor advised her to stop taking the penicillin and we took our leave

As we turned down the cobbled street toward home, the doctor said

'They know about penicillin and streptomycin They've found out about them somehow We do get a few wandering drug sellers up this way But what they don't know is how to use them properly They don't know that improperly prescribed, they can often be harmful instead of helpful'

We spent about four days in Tansen, seeing not a single wheeled vehicle of any kind the whole time we were there We filmed the doctor as he treated his hospital patients, left the hospital to visit a nearby public school for his annual examination of the children, and, finally, with the arrival of long-awaited supplies, followed him out to a native village in the cholera area to inject the population for protection

If I can prevent one year's outbreak of cholera in one village, he said, "then I've really accomplished something'

Thus, for the "March of Medicine's' hour-long television report on American doctors the world over, we will bring back the story of perhaps the most remote of our American doctors—a man whose trail can be followed through the birthplaces of his family He himself was born in Germany, his wife in Korea

"Richard was born in Reading, Pa , Charles in India, and James, our youngest, in Nepal James, as far as we know, is the first American to be born in Nepal"

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Incidence of Chronic Pulmonary Disease Among Patients with Esophageal Disorders J R Vivas and E D Palmer Dis Chest 31 568 574 (May) 1957 [Chicago]

Chronic pulmonary disease is a threat in patients who have an esophageal lesion that causes esophageal retention or transcardial reflux The conditions arousing most interest in this respect are achalasia, diverticulosis, chalasia, hiatus hernia, esophageal foreign body, and stricture Pulmonary involvement seems to result from periodic unrecognized aspiration of material from the esophagus Presumably, this is largely a nocturnal affair, or at least recumbency favors migration of esophageal contents The severity of pulmonary disease encountered in some instances of achalasia and of esophageal diverticulosis has been disturbing, and more information is needed on the incidence of both clinical and subclinical pulmonary disease in all esophageal abnormalities, both those of a retentive nature and those causing dyskinetic effects The records of inpatients discharged from the Walter Reed Army Hospital during the calendar year of 1954 with diagnoses which included an esophageal disease were reviewed, but those with esophageal varices only were not included There were 68 in this series In order to include patients whose illness was not serious enough to require hospitalization, 32 additional outpatient records were selected at random to bring the total number to 100

The group included 65 males and 35 females, ranging in age from 12 months to 89 years Chronic pulmonary disease was found in 22 patients, that is, in 2 of 42 patients with hiatus hernia without secondary esophageal change, in 4 of 13 with diverticulum of the esophagus, in 2 of 12 with subacute erosive esophagitis without hiatus hernia, in 6 of 8 with achalasia, in 3 of 7 with subacute erosive esophagitis with hiatus hernia, in 2 of 3 with carcinoma of the esophagus, in 1 of 3 with Zenker's diverticulum, and, whereas both of the patients with esophageal stricture due to swallowing lye had chronic pulmonary disease, none of the 10 patients with other forms of esophageal strictures showed pulmonary involvement These 10 included 6 with stricture secondary to esophagitis, 3 with congenital stricture, and 1 with radiation stricture This study was undertaken not to prove cause and effect relationship but to bring out the high incidence of transadital aspiration type of pneumonitis in esophageal disease

Experience with Anticoagulant Treatment V Debenedetti and M Ravera Minerva med 48 1160-1165 (April 7) 1957 (In Italian) [Turin, Italy]

The authors report on the results of anticoagulant therapy in 390 patients treated for a total of 11,469 days Eighty-seven patients had myocardial infarction, 131, phlebitis and thrombosis, 27, cerebral thrombosis, 41, pulmonary embolism, 19, coronary insufficiency, 48, cardiopathies with decompensation, and 37, arteritis The treatment was always started with heparin and continued with Dicumarol The best results were obtained in patients with phlebitis and phlebothrombosis, pulmonary embolism, myocardial infarction, and in many patients with heart failure The authors used Quick's test for the control of the prothrombin level Severe hemorrhage can be avoided if the test is used regularly and on fresh samples of blood Severe hemorrhage occurred in 3 patients but was checked by suspension of the administration of the anticoagulant and with intravenous injections of vitamin K_1 Thirty-six minor hemorrhages were checked by diminishing the dose of the anticoagulant There is no risk in a well-controlled treatment Anticoagulant therapy is indicated for the prevention and treatment of postoperative complications which are mainly of a thromboembolic nature

Preliminary Report on Long Term Treatment of Cardiosclerosis with Dicumarol K K Bengtsen and G Aspenstrom Acta med scandinav 157 217-222 (No 3) 1957 (In English) [Stockholm]

Dicumarol was given to 82 selected patients with myocardial infarction and to those with angina pectoris for an average time of 14 5 months Severe cases and poor-risk patients were relatively numerous No thromboembolic complications occurred in the 62 patients who are still receiving treatment The death rate due to cardiac disease was 9 8% within the first year and 7% during the second and third years of treatment with Dicumarol, whereas the death rate of untreated patients with myocardial infarct or angina pectoris appeared to be 15 to 18% within the first year after diagnosis and about 9% during the following 2 years Treatment was discontinued in 12 patients One died from cerebral embolism and 4 had various thrombotic complications It is suggested that these complications were due to the sudden withdrawal of the drug Of 72 patients with angina pectoris 46 felt improvement, but this cannot with any certainty be ascribed to the anticoagulant Hemorrhagic complications were rare and easy to control For long-term therapy smaller doses of Dicumarol might be effective Differentiation between good-risk and poor-risk patients should be made The patients classified ' stress

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The place of publication of the periodicals appears in brackets preceding each abstract

Periodicals on file in the Library of the American Medical Association may be borrowed by members of the Association or its student organization and by individuals in continental United States or Canada who subscribe to its scientific periodicals Requests for periodicals should be addressed Library, American Medical Association Periodical files cover 1948 to date only, and no photoduplication services are available No charge is made to members, but the fee for others is 15 cents in stamps for each item Only three periodicals may be borrowed at one time, and they must not be kept longer than five days Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order Reprints as a rule are the property of authors and can be obtained for permanent possession only from them hyperreactors' with regard to the coagulability of their blood will benefit the most from treatment with Dicumarol Prolonged anticoagulant therapy does not yet incontestedly appear to be superior to other therapy for some types of cardiovascular disease

The Arterial Hypertension of Chronic Mercury Poisoning F Gobbato, G Scansetti and F Capellaro Minerva med 48 1209-1216 (April 11) 1957 (In Italian) [Turin, Italy]

The relation between prolonged occupational exposure to mercury and various cardiovascular-renal findings was investigated in 28 workmen Their ages ranged from 26 to 67 years, and the periods of exposure from 6 to 45 years, all manifested some degree of chronic mercurialism and were receiving compensation for disabilities ranging from 21 to 100% of their normal working capacity Within this limited group the systolic blood pressure was found to increase much faster (2 42 mm Hg per year) after age 40 than it does in the general population (0 433 mm Hg per year) The same was true for the diastolic pressure Statistically significant positive correlations were found *(a)* between systolic blood pressure and duration of exposure to mercury and *(b)* between diastolic pressure and severity of symptoms of intoxication Data on the velocity of the pulse wave in the aorta, on cardiac output, on renal blood flow, and on urea clearance were obtained in 12 subjects, and electrocardiograms from 15 have been analyzed in detail From these and other data it is concluded that alterations of renal function directly attributable to chronic mercurialism are infrequent and that when renal alterations do occur they are probably the usual local effects of a general arteriosclerosis The hypertension can be explained as originating in the central nervous system The organic lesions known to occur in the nervous system can involve the central mechanism that regulates blood pressure, and they suffice to explain the neurological, emotional, and vascular phenomena of chronic mercurialism

Effects of Aldosterone on Water, Electrolyte, and Nitrogen Metabolism in Addison's Disease R M Salassa, H L Mason, V R Mattox and others Proc Staff Meet Mayo Clin 32 201-212 (May 1) 1957 [Rochester, Minn]

Aldosterone has been isolated, structurally identified, and synthesized in the last several years This potent sodium-retaining steroid has been found in adrenal and systemic venous blood and in the urine Studies not only indicate that aldosterone is more potent than desoxycorticosterone acetate in causing sodium retention and potassium excretion but also suggest that there are other significant differences Whereas earlier work with aldosterone suggested that the administration of this steroid would not result in edema and excessive retention of sodium, later reports indicated that in doses of about 1 mg per day for 6 days aldosterone would cause retention of salt and water with mild edema and increase of intracellular fluid The authors gave aldosterone to 3 patients who had adrenocortical hypofunction and observed the effects of moderate and relatively large doses of the steroid on electrolyte and nitrogen balance, total body water, exchangeable sodium, and blood electrolytes They found that aldosterone is capable of correcting the electrolyte and water imbalances associated with Addisonian crisis and of maintaining electrolyte balance in patients who have adrenocortical hypofunction The daily intramuscular administration of 400 or 800 mcg of aldosterone for 7 to 14 days resulted in increased exchangeable sodium, increase of total body water, increase of extracellular fluid space, and development of mild edema No hypertension, alkalosis, or change in pigmentation was observed during the administration of aldosterone, and there was no significant change in nitrogen balance These studies indicate, as do previous observations by others, that large quantities of aldosterone are needed before one can produce and study the full picture of hyperaldosteronism in man

Thalassemia Minor Experience with 50 Consecutive Patients M B Burris and R Barzilai J Florida M A 43 1204-1206 (June) 1957 [Jacksonville]

The authors report on 50 patients with thalassemia minor referred to the section on hematology at the Ochsner Clinic in New Orleans Nine of the patients were of Anglo-Saxon, 3 of French, 30 of Italian, 4 of Spanish, and 4 of Greek descent Most of the patients were from the southern states Only 10 had a hemoglobin level of less than 9 5 Gm per 100 cc In most of the patients the hemoglobin level ranged from 10 to 13 5 Gm per 100 cc The red blood cell count ranged from 3,200,000 to 7,000,000 per cubic millimeter Reticulocytes were elevated above 2% in 19 patients, the highest count being 7% The bilirubin level was elevated in only 2 of the 10 patients in whom it was determined The degree of anisocytosis, poikilocytosis, and microcytosis was variable and did not correlate well with the level of hemoglobin Patients with symptoms attributed to anemia frequently had these symptoms first on reaching some period of emotional stress well after maturity In many the symptoms first appeared after anemia had been recognized and the patient had undergone a prolonged period of futile treatment Thirty-four patients had been treated for periods up to 10 years with iron, vitamins, cobalt, and liver with or without other indications Although such treatment is not physically harmful, with the possible exception of excessive iron or cobalt, those who were treated most energetically had the most severe functional complaints There were no positive physical findings other than a variable degree of pallor and a palpable spleen in 13 of the 50 patients

Thalassemia minor is frequently overlooked as a cause of microcytic anemia Characteristically the mean corpuscular volume is low, the mean corpuscular hemoglobin decreased, and the mean corpuscular hemoglobin concentration normal or slightly below There is increased resistance to hypotonic sodium chloride solution Reticulocytes are normal or moderately increased Indirect bilirubin is normal or moderately increased The bone marrow shows an increase in normoblasts The serum iron level is elevated and the iron-binding protein is saturated Of great diagnostic significance are similar hematological findings in one of the parents The disease is not infrequent among the Mediterranean races, is seen occasionally in patients of other racial extraction, and is not rare in the southern part of the United States The diagnosis is not difficult to make once the condition is considered Before their admission to the hematological department, anemia had been previously recognized in 39 of the 50 patients, although the diagnosis of thalassemia minor had been considered in only 4 Ordinarily the anemia causes no symptoms or only mild complaints Unrelated functional complaints are common

Treatment of Lupus Erythematosus with Antimalarial Drugs M H Foss Tidsskr norske lægefor 77 341-344 (April 15) 1957 (In Norwegian) [Oslo]

During the last several years, Resochin therapy has been the standard method of treatment applied in the Rikshospital in the chronic discoid form of lupus erythematosus The substance was usually given in doses of 0 25 Gm twice daily for a week, then 0 25 Gm daily The treatment lasted for from 1 week to 22 months, average time 16 weeks Follow-up of 57 patients (19 men, 38 women), aged between 30 and 60, with chronic discoid lupus erythematosus treated in the dermatologic department of the hospital in 1955 showed a complete regression in 20 cases, in 14 of which subsequent relapse occurred, improvement in 24, no response in 12, and aggravation in 1 case Side-effects were seen in 21 cases The treatment had to be discontinued in 9 cases but could be resumed in 4 Great caution is called for in the use of Resochin in treatment of systemic lupus erythematosus, if it is applied in such cases, combined treatment with cortisone is advised

Technic of Controlled Drug Assay Illustrated by a Comparative Study of Rauwolfia Serpentina, Phenobarbital and Placebo in the Hypertensive Patient A P Shapiro and H C Teng New England J Med 256 970 975 (May 23) 1957 [Boston]

A technique for controlled drug assay applied to a comparison of Rauwolfia serpentina and phenobarbital in a group of 144 ambulatory patients with mild to moderately severe hypertension is described The patients were divided at random into 3 groups of 48 each and given alseroxylon (Rauwiloid), phenobarbital, and placebo respectively Most of the patients were told that a new medicament was being given them, but they were not informed of its nature The physicians in the clinic had no knowledge of which preparation a given patient was taking The patients were not assigned to any one physician in the clinic, to ensure randomization study of the effect of the doctor-patient relation Psychotherapeutic measures were avoided as much as possible Sixteen patients did not return to the clinic after the initial visit The average duration of treatment was approximately 30 weeks, identical for each group In 1 patient receiving Rauwiloid a subarachnoid hemorrhage developed, and he died Improvement in over-all function was noted in about a third of the patients receiving placebo and Rauwiloid and in more than a half in the group given phenobarbital However, there was no difference in effects on headache and cardiovascular symptoms Side-effects were found in 30% of the patients given placebo, in 62% of those given Rauwiloid, and in 43% of those receiving phenobarbital Rauwolfia alkaloids produce a slight but definite decrease in peripheral resistance The tendency to weight gain, evoked by the Rauwolfia alkaloids, and their production of various troublesome side effects may outweigh the hypothetical benefits derived from their quite modest effect on peripheral resistance Phenobarbital sedation is capable of decreasing blood pressure to a lesser degree but with less intense side effects, no weight gain, and a more intense feeling of well-being in the hypertensive patient The experimental design employed in this study is recommended for use in similar drug assays

Spontaneously Regressive Enlarged Mediastinal Lymph Nodes in the Adult On the Basis of 12 Cases J Lemenager, J Porin and J Rousselot Semaine hôp Paris 33 1526-1535 (April 20) 1957 (In French) [Paris]

The increasing use of routine radiologic examinations has led, in recent years, to the discovery in many persons, usually anergic to tuberculin, of enlarged mediastinal lymph nodes that cause no symptoms and that regress spontaneously after periods varying from a few weeks to a few months The benign nature of the enlargement cannot be immediately affirmed, because Brill-Symmers disease in its initial phase may be characterized by a mediastinal lymph-node tumor that later becomes secondarily malignant The follow-up in an appreciable number of cases, however, has been long enough to justify the recognition of a group of benign conditions of the mediastinal lymph nodes that progress spontaneously and definitively to cure The origin of these conditions has not yet been determined, but 3 principal causes have been suggested bacterial or viral infection, tuberculosis, and Besnier-Boeck-Schaumann sarcoidosis

Tests designed to reveal the presence of infection usually produce negative results, although it has been possible in a few instances to identify a specific virus Thus ornithosis was discovered in one patient, another had infectious mononucleosis, and in others cat-scratch fever and benign postvaccinal lymphoreticulosis were demonstrably present The infrequency, however, with which proof of viral infection can be obtained in patients with apparently benign mediastinal lymph-node enlargement has led investigators to turn their attention chiefly to tuberculosis and Besnier-Boeck-Schaumann sarcoidosis as possible causes of the enlargement The tuberculin anergy usually found in the patients is not incompatible with the presence of tuberculosis, because tuberculin-induced reactions are sometimes very slight and inconstant even in patients with genuine tuberculosis The discovery of lymph-node or pulmonary tuberculosis does not exclude the possibility of sarcoidosis, since the two conditions may coexist Several workers have suggested that the enlarged lymph nodes are in reality purely mediastinal forms of Besnier-Boeck-Schaumann sarcoidosis and that the polyvisceral character of the disease will become evident later on in other parts of the body The possibility that sarcoidosis may be present in these patients should be kept in mind, but, because of the frequency with which spontaneous regression of the enlarged lymph nodes takes place and because of the apparently benign nature of the condition, even when the enlargement shown by the x-ray examination is striking, a diagnosis of sarcoidosis or tuberculosis should not be made without adequate histological or bacteriological proof Similarly, the mere fact that the mediastinal lymph nodes are enlarged should not be regarded as justifying immediate x-ray treatment

Diagnostic Difficulties During the Simultaneous Occurrence of Tuberculosis and Bronchogenic Carcinoma T A J Kroon, J G Roosenburg and H Deenstra Nederl tijdschr geneesk 101 822-824 (May 4) 1957 (In Dutch) [Haarlem, Netherlands]

The histories of 5 patients are presented that demonstrate the difficulty of detecting a bronchogenic carcinoma in a patient with pulmonary tuberculosis The authors emphasize that the possibility of the simultaneous existence of a pulmonary carcinoma should be considered in all patients with pulmonary tuberculosis who are over 40 An unusual course of tuberculosis, an enlarging focus, the development of an obstructing infiltration, or the fact that there are not many tubercle bacilli demonstrable in the presence of a cavity should raise the suspicion of the presence of a pulmonary carcinoma

The Vascular Complications of Diabetes Mellitus A Clinical Study J W Bryfogle and R F Bradley Diabetes 6 159-167 (March-April) 1957 [New York]

Vascular disease has increased in importance in patients with diabetes mellitus since the introduction of insulin has reduced the incidence of coma and infection as causes of death and thereby increased the life expectancy The authors investigated 394 diabetic patients, selected regardless of age or duration of diabetes for the presence of 4 vascular complications diabetic retinopathy, diabetic nephropathy, peripheral vascular disease, and arteriosclerotic heart disease At least one of these vascular lesions was found in 49 5% (195 patients) In almost one-half of these, more than one type of vascular complication existed After 20 or more years of diabetes, 87 5% of these patients had one or more vascular complications Retinopathy was most frequently seen, being present in over 50% of those with diabetes for 10 to 15 years and in more than 84% of those with diabetes for 20 years or longer Diabetic nephropathy was present in approximately 10% of all patients and in 24% of those with diabetes for 15 years or more Peripheral vascular disease was noted in 15 7% of these diabetics Arteriosclerotic heart disease was present in 18 5% of the entire series and in 26 5% of those beyond age 39 Angina pectoris and myocardial infarction were present in 12 3 and 11 3%, respectively, of patients over the age of 39 When more liberal criteria were used, the likely incidence of arteriosclerotic heart disease was 56 2% at age 40 or more and for those aged at least 50, 66 4% The most characteristic diabetic vascular lesions, retinopathy and nephropathy, were related chiefly to the duration of diabetes Arteriosclerotic heart disease and peripheral vascular disease, which are less specific for diabetes, were related in their incidence both to the age of the patient and to duration of diabetes

Epidemic Rheumatic Fever Problems in Control at a Recruit Training Base B M Reen, N Schalet and H B Houser U S Armed Forces M J 8 802-810 (June) 1957 [Washington, D C]

The exact nature of the relationship between group A streptococcic infections and rheumatic fever has not been established It has been shown that first attacks of rheumatic fever can be prevented by adequate treatment of streptococcic infections with penicillin or broad-spectrum antibiotics In the general population this is difficult, and, while it has been suggested that the "captive population" of a military base would be an ideal group in which to treat acute streptococcic infections for prevention of rheumatic fever, this article outlines some of the difficulties in such a program and the specific measures employed to reduce the incidence of rheumatic fever A throat culture was obtained from all patients with respiratory disease admitted to the base hospital at Sampson Air Force Base in New York state Strains of beta-hemolytic streptococci isolated from these cultures were identified by Lancefield group and type The hospital charts of all patients with a discharge diagnosis of acute rheumatic fever were reviewed The hospital admission rate of patients exhibiting 10 or more colonies of group A streptococci on admission throat culture is shown in a graph The predominant type of group A Streptococcus throughout the study period was 19 The admission rate of streptococcic pharyngitis rose rapidly during the late fall months to a peak of 12 5 cases per week per 1,000 men, dropped in late December, coincident to the Christmas and New Year's leave period, and then rose rapidly to a peak of 11 3 by Jan 26 At this point, penicillin prophylaxis was administered on a base-wide scale, and the rate dropped off precipitously The rate began to rise again in the early weeks of March and reached a peak of 12 7 by early April This rate was sustained until mid-June and thereafter fell off to negligible levels for the summer

The rate of rheumatic fever rose with the increased hospital admissions for streptococcic disease and fell off at the time of penicillin prophylaxis Two weeks after the streptococcic infection rate again began to rise, the incidence of rheumatic fever began to increase Although the streptococcic hospitalization rate again reached proportions similar to those earlier in the season, the concomitant rise in rheumatic fever was less than earlier Several possible explanations for the failure of the rheumatic fever rate to parallel the streptococcic infection rate in the second half of the reporting period are discussed Host susceptibility seems likely Some families have a higher rheumatic fever incidence, and the tendency of rheumatic fever subjects to have recurrences is recognized The seasonal variation in the incidence of rheumatic fever merely reflects the seasonal incidence of streptococcic infections The presence of a particularly virulent rheumatogenic strain of Streptococcus in the early part of the winter seems unlikely in view of the fact that there was no type change in the streptococci responsible for disease during the 2 periods

A graph indicates that during the weeks prior to penicillin prophylaxis many cases of streptococcic infections were either not recognized or inadequately treated Little more than 25% of the estimated cases of streptococcic disease reached the hospital, whereas after the period of penicillin prophylaxis over 50% of the estimated patients were hospitalized and adequately treated It is difficult to make the trainee return for further penicillin therapy after his symptoms have subsided, and it is advisable to treat persons with streptococcic pharyngitis in the hospital By hospitalization of patients with respiratory disease many cases of streptococcic infection that would otherwise have gone unrecognized were discovered and treated

Rheumatic Manifestations in Hodgkin's Disease, Leukemia and Allied Conditions E Paguet and J-M Delage Canad M A J 76 927-933 (June 1) 1957 [Toronto, Canada]

The authors report the occurrence of rheumatic pain in 24 of 108 patients with Hodgkin's disease, in 6 of 43 patients with acute leukemia in 2 of 13 patients with lymphosarcoma, in 1 of 36 with chronic lymphocytic leukemia, in 4 of 19 with granulocytic (myelocytic) leukemia and in 6 of 15 with plasma cell (multiple) myeloma The spine was most commonly involved in patients with Hodgkin's disease, the lumbar or thoracolumbar segments were the most commonly affected and next, in order of frequentcy, the sciatic area or legs and the hip joints Symptoms referable to the bone and joints were more frequently seen in children with acute leukemia than in the other types of leukemia Diagnostic difficulty may exist with rheumatic fever The pain occurred usually at the onset of the disease in patients with acute leukemia and multiple myeloma but more often in the course of the disease in patients with Hodgkin's disease No constant relationship existed between painful manifestations and x-ray patterns Although infrequent in chronic leukemia, rheumatic pain was more often observed in granulocytic than in lymphocytic types

Blood Ammonia Levels in Hepatic Cirrhosis Their Control by the Oral Administration of Neomycin C J Fisher and W W Faloon New England J Med 256 1030-1035 (May 30) 1957 [Boston]

The relation between elevated blood ammonia concentrations and the development of hepatic coma has called attention to the production of ammonia by bacterial enzymatic action upon urea and other nitrogenous compounds in the gastrointestinal tract This has led several authors to suggest that antibacterial agents effective against intestinal organisms might be beneficial in this type of coma This communication reports the effect of oral administration of neomycin upon blood "ammonia" concentrations and upon mental status in patients with cirrhosis To elucidate the mechanism of the effects observed, observations upon fecal bacterial flora and upon ammonia concentration in arterial, peripheral venous, abdominal collateral, and portal vein blood also were carried out

It was found that administration of neomycin orally in doses of 8 to 12 Gm daily reduced venous blood ammonia to normal levels in 12 studies in 11 patients, 2 of whom were examined in 4 episodes of stupor or impending hepatic coma Clinical improvement was observed in the patients with neurological or mental symptoms After withdrawal of neomycin in 8 patients without neurological changes, the blood ammonia level rose promptly to control levels in 7 and showed a delayed rise in the 8th patient Stool cultures obtained during neomycin administration either were sterile or revealed urease-negative organisms regardless of the dose received Neomycin was found in the blood in insignificant concentrations except in the presence of renal disease with nitrogen retention It is concluded that neomycin reduces the blood ammonia level in patients with cirrhosis, with or without neurological changes, by virtue of its effect upon the bacterial flora of the intestine Neomycin is an effective therapeutic agent in patients with hepatic cirrhosis and ammonia intoxication

Hepatic Coma A Clinical Study M Delp, W G Calkins and R W Weber Arizona Med 14 335-342 (June) 1957 [Phoenix]

The authors report on 43 patients, 21 male and 22 female, between the ages of 8 and 75 years, with liver disease manifesting coma Irritability, confusion, lethargy, flapping tremor, and fetor hepaticus formed the most helpful symptoms and signs in predicting that coma was imminent Biochemical liver-function tests were not helpful in predicting the onset of coma Although it is commonly stated that patients in hepatic coma have hypoglycemia, this was not observed in any of the 43 patients A factor precipitating hepatic coma was strongly indicated in 39 patients Of these, 21 had evidence of gastrointestinal bleeding with blood in the intestinal tract before the onset of coma Three patients had received ammonium chloride before the appearance of coma One patient had received amino acid preparations intravenously One had received exchange resins containing ammonium Thus 26 patients had unusual amounts of nitrogenous substances in the intestinal tract before coma developed Pneumonia occurred before the onset of hepatic coma in 3 patients Precoma and coma rapidly followed paracentesis in 3 patients Coma occurred after surgical intervention in 2 patients Coma followed the administration of barbiturates in 2, of narcotics in 1, and of acetazolamide in another An alcoholic debauch immediately preceded hepatic coma in only 1 patient

Although the exact mechanism is not clear, more and more evidence is accumulating to indicate that increased blood ammonia levels are important in the causation of hepatic coma Blood ammonia concentrations were determined in 100 normal blood donors Values between 50 and 110 mcg per 100 cc were considered normal Values between 111 and 135 mcg per 100 cc were considered to be borderline, and values over 135 mcg per 100 cc were considered definitely abnormal Blood ammonia levels were determined in 14 patients with liver disease, 8 with hepatic coma and 6 without Of the 8 patients, 3 had normal blood ammonia levels and 5 had abnormally high blood ammonia levels on at least one occasion All 6 patients without coma had normal ammonia levels

A Study of the Relation of the ABO Blood Groups to Peptic Ulceration and Hypertension S Pell, C A DAlonzo and A J Fleming Ann Int Med 46 1024-1030 (June) 1957 [Lancaster, Pa]

Reports in the literature on significant relationship between ABO blood groups and certain diseases induced the authors to study the distribution of blood groups in 12,904 employees of the DuPont Company whose blood types were available Among the various diseases prevalent in this population, peptic ulcer and hypertension were the only 2 the incidence of which was high enough for adequate statistical analysis The study of the distribution of blood groups in 298 persons with a history of peptic ulcer showed an increased frequency of O blood and a reduced frequency of A blood of about 5% when compared with a control group of employees without history or evidence of peptic ulcer This relationship is consistent with, but not so great as, that observed by other investigators The findings concerning the distribution of blood groups in 508 persons with hypertension were inconclusive but did suggest that there may be a slightly greater chance of the possible occurrence of hypertension in persons with type A blood than in those with type O blood Additional data are needed to clarify the nature and extent of this relationship Consideration might be given to these findings in a preventive medical program

SURGERY

Intracardiac Surgery in Deep Induced Hypothermia H B Wulff, K Hæger, H Ryd and others Acta chir scandinav 112 186-198 (No 3-4) 1957 (In English) [Stockholm]

Nine children, 5 girls and 4 boys, between the ages of 2½ and 14 years and 1 22-year-old woman with congenital heart disease were operated on while under hypothermia Eight patients had atrial septal defects, 1 had tetralogy of Fallot, and 1 had transposition of the aorta and valvular pulmonary stenosis The patient was given premedication on the day of the operation with 1 mg of chlorpromazine, 0 5 mg of meperidine (Demerol) hydrochloride, and 0 01 mg of atropine per kilogram of body weight Anesthesia was induced with vinyl ether–ether, after which an endotracheal tube was introduced A heart catheter was passed by way of the saphenous vein until its tip lay roughly at the level of the diaphragm Through this catheter the patient received 1 mg of procaine amide per cubic centimeter of dextran solution by drip The drop rate was adjusted so that from 500 to 1,000 cc of the solution was infused during the cooling procedure In addition, the patient was given 100 mg of procaine amide at the beginning of the operation and another 100 mg shortly before the circulation was shut off Highly cold-sensitive parts of the body, such as the hands, feet, ears, and external genitals, were wrapped in cotton wool, and a few drops of liquid paraffine were inserted into the eyes, after which the nude patient was enclosed in a thermobox in which hypothermia was induced by circulating cold air The cooling procedure required between 1 3 and 2 5 hours according to the body surface and weight of the patient At from 28 to 30 C (82 4 to 86 F) deep rectal temperature, the patient was removed from the box and the operation was started The temperature decreased regularly 2 or 3 degrees after removal of the patient from the box During the initial phase of the cooling procedure, the patient spontaneously breathed a mixture of oxygen, nitrous oxide, and ether in a semiclosed system with carbon dioxide absorption At 33 C (91 4 F) respiration was taken over by the anesthetist, whether spontaneous respiration was satisfactory or not Vigorous hyperventilation was started, with 30 to 40 respirations per minute Any tendency to shivering was controlled by intravenous injection of minimal doses of succinyl choline (10 to 20 mg) or chlorpromazine (10 to 25 mg) The patient was rewarmed after the operation in the box with warm circulating air (45 C [113 F]) Rewarming usually required 2 to 4 hours

Nine of 10 patients operated on while under hypothermia survived the hypothermia and the operation One died in the course of the operation Autopsy revealed not only a larger atrial defect than that for which he was operated on but also a ventricular septal defect Surgery and not hypothermia must have been responsible for his death Septicemia caused the death of a second patient on the 18th postoperative day Autopsy revealed a trilocular heart with atrophy of the right ventricle but normal tricuspid valves emptying into the left ventricle The septicemia was explained by suppurative endocarditis Whether or not hypothermia as such contributed to the development of septicemia is difficult to say Cardiac standstill occurred in 1 patient when the thorax was opened The complication was immediately detected, thanks to cardioscopic control, and successful cardiac massage was started within 1 minute It is probable that the cardiac standstill was at least partly precipitated by the injection of 100 mg of procaine amide into the inferior vena cava Since then this drug was injected over a longer period and the commercial solution was diluted 1 10 with isotonic sodium chloride solution Six of the patients operated on had a slight rise of temperature postoperatively for periods up to 3 weeks The immediate risks of surgical treatment during hypothermia may be somewhat greater than during normothermia, but the bloodless heart permits much more radical intervention and better late results

Effect of Bilateral Adrenalectomy on Diabetes Mellitus H J Wolff, B J Kennedy and M B Johnson Minnesota Med 40 318-321 (May) 1957 [St Paul]

The authors comment on the relentlessly progressive vascular disease seen in some patients with diabetes mellitus, pointing out that juvenile diabetic patients are especially prone to have premature arteriolar degeneration, with vascular lesions making their first appearance from 5 to 15 years after the onset of clinical diabetes Microaneurysms in the retinal arterioles are often recognized in the early stages of vascular degeneration, and the kidney frequently follows as a major area of impact Kimmelstiel and Wilson observed in diabetic persons intercapillary glomerulosclerosis characterized in the advanced stages by hypertension, retinitis, nitrogen retention proteinuria, and hypercholesterolemia with eventual renal failure and death Hypoglycemic and hyperglycemic stress factors and resultant adrenal cortical dysfunction are readily recognized in the clinical course of most patients with diabetes in whom early vascular degeneration is prone to develop and this suggested that total bilateral adrenalectomy might modify the arteriolar degenerative lesions of diabetic patients

The authors review the literature on adrenalectomy in diabetes mellitus and report the history of another young diabetic patient with associated vascular disease who underwent total bilateral adrenalectomy At least 12 diabetic patients have been reported on in whom bilateral adrenalectomy was carried out because of advanced vascular disease Five of these 12 died postoperatively due to either adrenal insufficiency (3) or continued progression of the degenerative vascular lesions (2) It appears that at least one reason for the unfavorable outcome of adrenalectomy lies in the advanced degree of vascular deterioration that has always been present before operation was considered Several authors advocated that patients with evidence of severe vascular and renal deterioration, significant nitrogen retention, proteinuria in excess of 5 Gm daily, and diastolic blood pressures more than 120 mm Hg should be excluded as candidates for adrenalectomy Total bilateral adrenalectomy as a therapeutic measure in the initial stages of arteriolar degeneration would appear to represent radical therapy, but it is evident that procrastination until the vascular or renal lesions have reached the stage of irreversibility has not been successful As an ancillary procedure calculated to prolong life in a diabetic patient with advanced vascular disease, total adrenalectomy does not appear to deserve approbation

Wedge Resection in the Treatment of Tuberculosis A Study of 150 Operations J J Quinlan, V D Schaffner and J E Hiltz Canad M A J 75 842-844 (May 15) 1957 [Toronto, Canada]

It has been widely accepted for a number of years that closed caseous tuberculous lesions that remain after the completion of other types of therapy should be resected At the Nova Scotia Sanatorium, a large proportion of such lesions were found to be located near the periphery of the lung and so could be removed by a simple wedge resection The sanatorium records of 144 patients who underwent 150 consecutive wedge resections between September, 1951, and September, 1955, were reviewed The closed caseous lesions remained after prolonged therapy with a combination of at least 2 tuberculostatic agents The chest was entered through the 4th and 5th intercostal space by a posterolateral thoracotomy There was 1 postoperative death, in a 52-year-old man, which seemed to have been caused by coronary occlusion No complications resulted in 131 (87 3%) of the operations So-called stubborn space, a pleural space that was still present 2 weeks after the operation, was the most frequent complication, occurring after 13 of the operations All but one of these spaces eventually became obliterated There were 3 empyemas, 2 tuberculous and 1 nontuberculous All resolved with needle aspiration and antimicrobial therapy In 3 instances, tuberculous disease may have spread Bronchopleural fistula and wound infection occurred in 1 patient each Bacteriologic examination of the resected specimens revealed tubercle bacilli in 58 on either slides or cultures The authors conclude that the results of wedge resection are generally very satisfactory

Clinical Studies in Extracorporeal Circulation with a Heart-Lung Machine C Crafoord, B Norberg and A Senning Acta chir scandinav 112 220-245 (No 3-4) 1957 (In English) [Stockholm]

Intracardiac operations were performed with the aid of extracorporeal circulation using a specially devised heart-lung machine in 5 children between the ages of 2 and 15 years and in 8 adults between the ages of 17 and 52 years with congenital and acquired heart disease The heart-lung machine consisted of an oxygenator and a pumping device combined with a regulating unit The artificial oxygenation took place by means of rotating screen cylinders, and the effect could be raised with a preoxygenator of the bubble type Venous return to the machine was accomplished by gravity, and no attempt was made to restrict the flow The artificial heart consisted of an automatically regulated pump The heart-lung machine was filled with freshly-drawn heparinized blood from donors Of the 13 patients, 1 had an aneurysm of the left ventricle, 2 had ventricular septal defects, 3, atrial septal defects, 1, combined atrial and ventricular septal defects, 2, congenital aortic stenosis, 1, complete transposition of the great vessels, 1, isolated infundibular pulmonary stenosis, 1, mitral stenosis, aortic stenosis and tricuspid insufficiency, and 1 ventricular septal defect and valvular pulmonary stenosis

Five of the 13 patients died, in 1 of the 5, death was caused by an error in the procedure, since the flow rate of perfusion was too low during a considerable part of the intracardiac operation One 2-year-old girl died within 24 hours after the operation, and no satisfactory explanation of the cause of death was found The death of the patient with transposition of the great vessels resulted, after complete correction of the anomalies, from heart failure One patient with congenital aortic stenosis and calcifications of the valve died on the 4th postoperative day of pulmonary complications, and 1 patient with multivalvular disease and cirrhosis of the liver died on the 4th postoperative day of hepatic insufficiency The remaining 8 patients were alive at the time the paper was written

Biochemical studies revealed metabolic acidosis as the most conspicuous change in the patients operated on with the aid of a heart-lung machine This change may also be found in patients subjected to heart operations without by-pass procedures, although it is then less pronounced The acidosis was regarded as detrimental, and its correction by means of bicarbonate infusion was recommended A moderate reduction in serum potassium and calcium levels was found to occur, but these levels were restored to normal spontaneously Other ionic changes were less constant and were considered to be unimportant Serum enzyme changes followed a pattern typical of myocardial infarction, and they may have been the result of the surgical trauma Bromsulphalein clearance tests provided valuable information concerning liver function, they showed that the liver was subjected to a particular stress which might have been due partly to acidosis The morphologic blood elements showed moderate changes in the course of the operation, but marked leukocytosis was present during the first postoperative week The blood platelet count dropped to a minimum within about 5 days after the operation but was restored to normal within 10 to 14 days

Chronic Leukemic Lymphadenosis and Pulmonary Resection The Question of Operability of Leukemic Patients H Effenberger and J Schulte Thoraxchirurgie 4 547-551 (April) 1957 (In German) [Stuttgart, Germany]

A case of lymphocytic leukemia was diagnosed in a 41-year-old man who had an open progressive pulmonary tuberculosis with large cavities During hospital treatment with a combination of chemotherapeutic and antibiotic drugs a regression of the tuberculosis with shrinkage of the cavities occurred Several weeks later, however, an exacerbation of the lymphocytic leukemia occurred with noticeable deterioration in the blood status After the chemotherapy was interrupted, the lymphocytic values became readjusted but the pulmonary tuberculosis again showed progression Resumption of the chemotherapy did not arrest the progression of the tuberculous process Since the lymphadenosis seemed to have a protracted chronic course and since damage of the erythropoietic system and, with this, reduction of hemoglobin formation could be excluded, it was decided to arrest the pulmonary tuberculosis by resection of the left upper lobe The intervention was tolerated without complications During the postoperative period an average of 300 cc of bank blood was administered once a week These transfusions resulted in a reduction of the leukocyte values Four weeks after the resection the blood status had been restored to preoperative values The patient has been working for about a year as a clerk At a follow-up examination 14 months after the operation both the chronic lymphocytic leukemia and the pulmonary tuberculosis seemed to be under control

Carcinoid Tumors Report of Case with Ileal Involvement C W Mayo and W M Hardy Proc Staff Meet Mayo Clin 32 254-257 (May 15) 1957 [Rochester, Minn]

The authors report the case of a 59-year-old man in whom exploratory laparotomy disclosed 20 carcinoid tumors involving a 2-foot segment of the ileum Metastasis was present in the liver His chief complaints had been intermittent episodes of crampy abdominal pain, distention, and borborygmi Occasional intestinal bleeding, attributed to hemorrhoids, had been present for a number of years This case was somewhat unusual in that the patient had none of the symptoms, such as flushing, asthma, cardiac murmurs cyanosis, edema, and diarrhea, usually attributed to the presence of serotonin

Management of Imperforate Anus L Shaffner North Carolina M J 18 202-207 (May) [Winston-Salem]

The management of the imperforate anus presents a twofold problem there is the immediate need to relieve intestinal obstruction, and a choice has to be made of a procedure that will ultimately allow the patient to have normal intestinal function and control This second consideration is often overlooked in the urgency to establish some type of opening Judging from referrals, there apparently still is a great temptation to do a minor stab" incision in the perineum or a colostomy The inadequacy of either procedure becomes apparent after 2 or 3 weeks in one or two ways Either the 'stab" wound will begin to form a stricture, causing another partial obstruction, or, in cases of rectourinary fistulas, chronic urinary infection develops even in the presence of a colostomy After these complications have developed, surgical attempts at secondary repair are much more difficult Initial repair of imperforate anus should not only relieve the obstruction but promise normal intestinal control and function Accurate diagnosis as to the type of anomaly, with or without a perineal, urethral, vesicle, or vaginal fistula, is essential to adequate treatment Other serious anomalies involving the heart, esophagus, and urinary tract are common and should be sought for

The membranous type of imperforate anus can be easily treated by simple anoplasty In the imperforate type, with the rectal pouch 1 5 cm or less from the anal skin, a perineal approach is usually possible and should be attempted With a higher pouch, especially in the male with a rectourethral fistula, an abdominoperineal pull-through procedure is indicated Two of the 9 deaths that occurred in the 41 patients whose cases are reviewed by the authors were attributed to operation for imperforate anus Follow-up ranging from 1½ to 13 years in primary perineal procedures showed good to excellent results in 10 cases, in 3, wound breakdown or stricture was noted when the patient was last seen Of 7 patients undergoing abdominoperineal repair, 3 have had good function after 2 to 4½ years, 2 infants were recently operated on, and 2 have strictures requiring further surgery All patients required postoperative dilatations, and about half needed an additional minor anoplasty Colostomy should be used only as a temporary measure to help handle complications The earlier definitive repair is done, the better is the chance for normal control and function

The Fate of Esophageal Varices in Cirrhosis Following Surgical Portal Decompression E D Palmer Gastroenterology 32 861-867 (May) 1957 [Baltimore]

Success of surgical portal decompression in the treatment of esophageal varices secondary to cirrhosis must be measured largely in terms of prophylaxis against future hemorrhage This report deals with the fate of varices in patients with cirrhosis, as judged by esophagoscopic measurement, following portacaval shunt, splenorenal shunt or without a surgical shunt Sixty-three patients with cirrhosis proved by liver biopsy were followed by periodic esophagoscopic examinations for up to 63 months following surgical portal decompression for esophageal varices An end-to side portacaval shunt had been made in 49 patients, and an end to-side splenorenal shunt in 14 patients The control group consisted of 45 patients for whom shunt was recommended but who refused the operation Portacaval shunt proved far more effective in reducing portal pressure and eliminating varices than did splenorenal shunt The latter operation gave good immediate results, but as time went on the varices tended to become worse and the portal pressure rose progressively With portacaval shunt, on the other hand, the immediate results were excellent and later any remaining varices tended to disappear or to become very much smaller The varices of the cirrhotic patient may disappear spontaneously without the operation, but there will probably be a return in all cases as time goes on Esophageal varices secondary to cirrhosis are vacillating structures influenced by a head of portal pressure which is constantly changing Variations in portal pressure continue after surgical portal decompression, but at much reduced levels

Bacteriological Experiments with Surgical Plastic Dressings G R Wallgren Acta chir scandinav 112 161-169 (No 3-4) 1957 (In English) [Stockholm]

Five plastic solutions recommended for use as surgical dressings were tested in vitro and in vivo These are (1) Bonoplast, an acrylic resin dissolved in ethyl acetate with the addition of a plasticizer, (2) Aeroplast, an ethyl acetate solution of copolymers of hydroxyvinyl chloride acetate and sebacic acid 9 3% by weight and modified maleic resin ester 3 1% by weight, with fluorochloro-hydrocarbon gas as a propellant, (3) Newskin, consisting of pyroxylin 6 9%, camphor 0 6%, castor oil 3%, butyl alcohol 5%, ethyl acetate 57 3%, and ethyl alcohol 25%, (4) Nobecutan, consisting of a 4% by weight solution of polymetacrylic acid ester with an ether bridge in the alcohol component, and (5) Portex plastic skin, consisting of phenyl salicylate 10%, resorcinol 5%, egenol 25%, and a proprietary Portex double methyl ester of acrylic resin The results of more than 2,000 bacteriological tests made on culture plates, principally on blood agar, and on patients' intact skin, showed that (1) the plastic solutions listed were sterile in themselves, (2) on the addition of certain bacteria the plastic solutions again became sterile after a certain maximum interval, (3) a zone of inhibition at the edge of or above the plastic film was produced only by Nobecutan, (4) the microorganisms tested penetrated the plastic films, but macroscopic growth was not always visible under the films and through-growth did not occur when the films were made a little thicker than normal, and (5) a slight reduction appeared in the bacterial flora underneath the plastic films

The plastic films are superior to cotton-wool dressings in many regards If all the qualities of the tested plastics are taken into account, Nobecutan and Aeroplast are better than the other products A plastic film is suitable as a mechanical protection for preoperative covering of the skin and as wound dressing for clean wounds in otherwise healthy skin The scope of the antiseptic effect of a plastic film in which disinfectants have been incorporated is not yet sufficiently guaranteed for plastic film alone to replace all surgical cleansing of the skin, but an effect like that exerted by Nobecutan is not without significance A film thickness of from 60 to 90 μ is recommended for Nobecutan, but to achieve this film thickness 4 to 5 coatings by spray were always required

Cholesterosis of the Gall Bladder W F Mitty Jr and L M Rousselot Gastroenterology 32 910-916 (May) 1957 [Baltimore]

Cholesterosis of the gallbladder has been known as a pathological entity since 1857, but a clear understanding of its pathological process is largely due to Boyd's studies, reported in 1923 In cholesterosis the lipoid is usually most abundant in the epithelium covering the villi of the mucosa Cholesterosis of the gallbladder should be reemphasized, because it is often neglected in the differential diagnosis of biliary tract disease The true incidence of the condition is difficult to ascertain, as it varies between autopsy material and surgical specimens In order to determine if a gallbladder obtained at autopsy is involved with cholesterosis, the examination must be accomplished within 3 hours of death, before autolysis of the mucosa takes place Gallstones and cholesterosis often concur, and it has been stated that cholesterosis without calculi is of no clinical significance and that cholesterosis per se does not produce symptoms It is this contention the current study purports to refute

The authors found that the diagnosis of cholesterosis was verified in 70 of 1,054 patients by pathological examination of the removed gallbladder In 38 of these 70 patients no stones were associated with the cholesterosis Abdominal pain was noted in 34 of 38 patients, 20 of these patients located it in the right upper quadrant, 4 had colicky pain localized to the periumbilical region, and 10 complained of epigastric pain In 19 patients the pain was referred to either the shoulder or the back The mechanism of pain in this disease, so similar to true biliary colic, is not clearly understood Cholecystography was performed in 28 of the patients It revealed normal function in 14 and impaired function in 9 In 5 the gallbladder was not visualized, but in 2 of these 5 calculi were found There was little correlation between the abnormal cholecystograms and the histological examinations of the gallbladder Of the 14 patients who had either impaired function or nonfunction of the gallbladder, only 4 had microscopic evidence of an associated chronic cholecystitis

The patients presenting normal cholecystograms but classic symptoms of gallbladder disease represent a challenge to the internist and the surgeon It is in this group of patients that duodenal drainage is indicated, and cholesterol crystals, if found, will indicate the diagnosis of cholesterosis It is only under these circumstances that a cholecystectomy is justified Without a positive duodenal drainage study and in the presence of a normal cholecystogram and normal operative findings no indication for cholecystectomy exists The authors were able to follow 32 of the 38 patients and found that 28 of the 32 were free from symptoms The other 4 still had symptoms, but in these the predominating complaint preoperatively was not pain but heartburn, gaseous eructation, and flatulence The treatment of choice is cholecystectomy Cholesterosis is probably a local manifestation of a systemic disease involving a disturbance of cholesterol metabolism Its focal occurrence in the gallbladder often presents a clinical pattern similar to chronic cholecystitis with or with cholelithiasis

Blood Vessel Replacement Therapy F N Cooke J Florida M A 43 1109-1116 (May) 1957 [Jacksonville]

Of 46 operations in which blood vessel transplants were used to reconstruct arterial continuity, 3 were performed as emergency procedures for an aneurysm that had ruptured, 16 grafts were placed in the abdominal aorta as an elective procedure, 6 were placed in the thoracic aorta, and 21 were placed in peripheral vessels Nine of the 46 patients died, an operative mortality of 19 1% The results in the patients who survived the operation for aneurysm were gratifying Peripheral circulation was adequately reestablished in all Only 2 of these patients died in the late postoperative period, 1 of them died of malignant disease of the prostate and the other of a ruptured abdominal aneurysm after a successful transplant for a thoracic aneurysm Autopsy was performed in both and revealed that the homologous graft was functioning well at the time of death Of the 21 peripheral transplants 14 were used for traumatic arteriovenous fistula and aneurysm In 9 of the 14 patients, autogenous vein grafts and in 5, homologous arterial grafts were used These transplants have functioned in a highly satisfactory manner for many years Ten of the 46 operations were performed for obliterative arterial disease, and the results were not as good as in the case of those performed for aneurysm The disease is diffuse, and there may be occlusion distal to the by-passed segment Most of the failures were attributed to the skip areas of obliteration, i e, to the nature of the arteriosclerotic disease itself

For short defects in peripheral vessels such as have been observed in traumatic aneurysm or arteriovenous fistula, the autogenous vein graft offers an excellent method of reestablishing vascular continuity The homologous arterial graft which has been sterilized and stored in a frozen state has given highly satisfactory results in the surgical treatment of aneurysm When normal or near normal proximal and distal arterial segments are present, restoration of vascular continuity can be accomplished with certainty In obliterative arterial disease it is the disease itself which in most patients determines the success or failure of the replacement therapy

Cancer-Cell Seeding of Operative Wounds as a Cause of Failure in the Surgical Treatment of Cancer R R Smith and A W Hilberg J Maine M A 48 151-156 (May) 1957 [Brunswick]

Cancer cells have been demonstrated on instruments, in wash water, and on the surface of organs A study was undertaken at the Clinical Center, National Institutes of Health, to determine how frequently tumor cells could be identified in washings taken from operative wounds Patients with cancer that by accepted standards was considered operable but by reported end-results would have a high incidence of local recurrence were treated by the usual en bloc cancer surgery Just before closure of the skin flaps, after the surgical removal of the primary tumor and its lymph node drainage area, the wound was thoroughly washed with sterile isotonic sodium chloride solution in a fine spray The washings were collected in a glass container and mixed as soon as possible with the fixative of 70% or 95% alcohol

The washings were then centrifuged at 2,500 rpm Part of the resulting sediment was covered with 10% formalin and the button of fixed sediment embedded in paraffin and sectioned in the routine manner for tissue sections Another part of the sediment was smeared directly on clean glass slides, which were then immersed in a solution of equal parts of 95% alcohol and ethyl ether After 30 minutes, and while wet, the slides were stained by routine nuclear and cytoplasmic stains The Papanicolaou staining technique was the standard method used The slides were screened by technicians trained to interpret exfoliative cytologic material, and cells or groups of cells to be studied by the pathologist were marked

In the first 113 patients studied, cancer cells were demonstrated in 31 (positive results), and in an additional 16 patients the cytologist could not be definitely sure as to the nature of the cells and reported the washings as suspicious In the remaining 66 patients, no tumor cells were found The significance of these results is difficult to determine at this time Many of the patients have not had sufficient time to manifest their metastases Since the wounds were thoroughly washed, it will be difficult to determine just what the washing alone will do to the incidence of local recurrences There are 7 known seeded recurrences in the operative area in patients with positive washings and an additional 2 recurrences in patients with suspicious washings There have been recurrences in 7 patients whose washings were free from tumor cells It is believed that in some patients local seeding is the cause of failure of surgical treatment If effective chemotherapeutic agents are discovered which can selectively destroy cancer cells that either become embedded in the wound or break off and are free in the blood or lymph channels, effective cancer therapy will be available

PEDIATRICS

Visceral Larva Migrans A Cause of Severe Eosinophilia

F C Vanore M Ann District of Columbia 26 245 247 (May) 1957 [Washington, D C]

Visceral larva migrans results from the ingestion of dirt infested with eggs of Toxocara canis, a parasitic round worm whose natural host is the dog T canis is especially seen in areas where the soil is sandy, warm, and moist It is one of the commonest parasites found in the soil About 90% of dogs under 2 years harbor the round worm The fertile eggs are passed in the dog's stools and contaminate the soil, after 3 weeks the eggs become embryonated and may be swallowed by man, especially children, who do not observe sanitary precautions The larvae hatch, penetrate the intestinal wall, and migrate to various organs The larvae usually remain in the liver, where they become encapsulated and perish after several months T canis, unlike Ascaris lumbricoides, never reaches a mature form in man, since the natural host is the dog, and therefore stools of a suspected patient will be negative for ova and parasites Visceral larva migrans is related to cutaneous larva migrans or creeping eruption in that both are caused in the infective stage by larvae of nematode parasites specific for lower animals

The clinical symptoms of children who have this disease are protean and may be mistaken for Loffler's syndrome and tropical eosinophilia Fever, leukocytosis, hyperglobulinemia, and pulmonary changes are common The pulmonary changes are suggestive of patchy pneumonitis and Loffler's syndrome Clinically the findings are akin to bronchitis and bronchopneumonia The patient may exhibit malaise, pallor, anorexia, muscle aches and pains, nausea and vomiting, and jaundice Hepatosplenomegaly is common An impetiginous, pruritic type of skin rash may appear on the trunk and extremities White blood cell counts may range from 15,000 to 80,000 per cubic millimeter of blood, with an eosinophilic percentage between 20 and 80 The disease is highly probable in an infant or child, usually between the ages of 1½ to 3 years, who has a history of ingestion of dirt with a persistently high eosinophil count A definitive diagnosis can only be made by liver biopsy and identification of the larvae on serial sections Although usually benign and self-limiting, the disease may cause severe symptoms Treatment of the disease in man has been unsuccessful to date, but cortisone may be used empirically

Calcification of Intervertebral Discs in Children Report of a Case

M B Mann North Carolina M J 18 195-197 (May) [Winston-Salem]

While calcifications of intervertebral disks are usually degenerative processes in adults and of negligible clinical significance, there have been few reports of radiologically demonstrable disk calcifications in children The case of the 9 year-old Negro boy reported in this paper was the 21st reported in the English language literature The boy was hospitalized with a history of pain and stiffness in the neck and shoulder which gradually subsided in the course of several weeks, but, because of these symptoms and abnormal findings in roentgenograms of the cervical portion of the spine, he was referred to the hospital The right shoulder was held higher than the left, with the head tilted slightly to the right There was fairly good range of motion of the neck, but extension produced sudden pain over the anterior portion of the right shoulder Lumbar lordosis was prominent Submandibular nodes were slightly enlarged The lungs were clear A systolic murmur was heard over the precordium Slight weakness of the deltoid and right biceps and triceps was demonstrated Physiotherapists observed weakness of the right shoulder and arm, especially in the deltoid and latissimus dorsi muscles A roentgenogram of the chest and fluoroscopic examination of the heart showed no abnormalities, but roentgenograms of the cervical and lumbar spine showed calcification between the 4th and 5th cervical vertebrae and the 5th lumbar and 1st sacral vertebrae An orthopedic consultant concurred with the diagnosis of calcified intervertebral disk syndrome of childhood Follow-up examination 6 months later revealed that the calcification had disappeared from the cervical region but was still present in the lumbosacral region

In 16 of the 21 children with intervertebral disk calcifications local symptoms occurred at the site of the calcification The other 5 cases were diagnosed on the basis of incidental findings noticed during the examination of patients with seemingly unrelated illnesses The reversible calcification in children is quite different from the irreversible calcification of the spine in adults It is possible that the variations in vascularization of the disks in childhood and in adult life may account for these differences Up to the age of 10 or even 20 years there is a profuse blood supply to the intervertebral disk through vascular channels which are embedded in and perforate the cartilaginous plates These vessels originate in the spongiosa of the vertebral bodies and are later obliterated by fibrous changes Two factors, either singly or together, could account for the transient calcification phenomena Trauma to the highly vascularized disk in childhood may result in hemorrhage and hematoma formation and subsequent calcification The rich blood supply would probably explain the eventual clearing of the calcification In addition, calcification may be the result of infectious processes involving the disks Signs of infection such as fever, leukocytosis, pain, and increased sedimentation rate were noted in some of the patients

Congenital Aortic Stenosis in Children B Landtman and E I Wallgren Ann Paediat Fenniae 2 259-269 (No 4) 1956 (In English) [Helsinki]

Congenital aortic valvular defects are comparatively rare A total of 6,400 children was examined at the cardiac clinic of the Children's Hospital, University of Helsinki The clinical diagnosis of congenital aortic stenosis was established in 24 children between the ages of 3 months and 16 years Two of the patients were siblings The children were not cyanotic The aortic stenosis was present as an isolated lesion in 17 One had aortic incompetence, 4 had a patent ductus arteriosus, 2 had coarctation of the aorta, and 1 presented clinical signs suggestive of a ventricular septal defect A rough systolic murmur, usually accompanied by a thrill, maximal over the aortic area, transmitted to the vessels of the neck, was the outstanding feature of aortic stenosis Phonocardiograms showed a diamond-shaped systolic murmur, transmitted by the blood stream as well as along the walls of the blood vessels Most of the children showed radiological evidence of left ventricular enlargement, which was more conspicuous in the children with complicated lesions The electrocardiograms revealed different degrees of left ventricular hypertrophy or strain All but one of the children with isolated aortic stenosis were asymptomatic The patients with patent ductus arteriosus improved after ligation of the ductus None of the patients died during the follow-up period, which varied from 1 month to 3 years No attempt was made to differentiate clinically between valvular and aortic stenosis, although angiography was sometimes of help in separating the 2 types

A Fatal Granulomatosis of Childhood The Clinical Study of a New Syndrome H Berendes, R A Bridges and R A Good Minnesota Med 40 309-312 (May) 1957 [St Paul]

The authors report observations and studies on 4 male children who were observed at the University of Minnesota Hospitals since 1950 and who had a hitherto unreported syndrome consisting of chronic suppurative lymphadenitis, hepatosplenomegaly, pulmonary infiltrations, and eczematoid dermatitis about the eyes, nose, and mouth During the first year of illness the chronic lymphadenitis was the most prominent clinical manifestation This process seems gradually to abate while the pulmonary disease and general debilitation dominate the clinical picture during the later stages of the disease Death occurred in 3 patients after an illness of from 2 to 3½ years One child has had his disease for a little over 1 year All patients were boys One child had a suggestive family history In 3 previous generations on the maternal side of this boy s family, with the exception of the boy's grandfather and great-grandfather, all the males died during infancy with a syndrome described as either boils and septicemia or scrofula The maternal grandfather, who survived, still has a mass in the cervical area Numerous laboratory studies were made on the 4 children, and autopsies and pathological studies were made on the 3 who died

The authors believe that the symptoms are the result of a generalized granulomatous process They were associated with a striking hypergammaglobulinemia The authors differentiated this new syndrome from recognized forms of infectious and noninfectious diseases producing granulomatous processes in childhood, but they feel that there is a remote possibility that this malignant granulomatous disease is actually a childhood expression of sarcoidosis The treatment of these children was largely empirical Chloromycetin and erythromycin were used in high doses for periods of at least 1 month Combinations of penicillin and sulfadiazine and the various tetracyclines were used for periods of one to several months Novobiocin was also tried without effect, and aminosalicylic acid, streptomycin, and isoniazid were used without effect in 2 of the patients Relentless progression seems to be the most characteristic feature of the syndrome

DERMATOLOGY

Fatal Agammaglobulinemic Progressive Vaccinia H M Lewis and F C Johnson A M A Arch Dermat 75 837-844 (June) 1957 [Chicago]

The recovery of an individual infected with vaccinia virus reflects his ability to produce adequate, appropriate, antivaccinal antibodies Failure to produce such bodies may be due to agammaglobulinemia or dysgammaglobulinemia Dysgammaglobulinemia differs from agammaglobulinemia in that it is amenable to therapy (hyperimmune vaccinia gamma globulin), runs a prolonged course, and represents a qualitative rather than a quantitative defect in gamma globulin formation In the absence of gamma globulin, virus-neutralizing antibody is not formed Inability to produce adequate virus-neutralizing antibody results in the initial site of vaccination undergoing enlargement and necrosis Many new concomitant lesions resulting from hematogenous virus dissemination undergo a similar metamorphosis, showing no sign of healing, with ultimate destruction of the host by the virus This entity, known as agammaglobulinemic progressive vaccinia, is usually fatal within 2 months or less

Dermatitis Medicamentosa Due to Antipyrine C B Kennedy, F H Davis, V M Henington and M J Sternberg A M A Arch Dermat 75 826 836 (June) 1957 [Chicago]

During the period beginning July 1, 1949, and ending May 1, 1956, 132 patients were admitted to the dermatologic wards of Charity Hospital of Louisiana in New Orleans with a diagnosis of dermatitis medicamentosa Included in this group were 27 Negro patients in whom the eruptions and other symptoms were clearly attributable to a preparation for the treatment of colds, manufactured under the name 666 (containing 0 6 Gm of antipyrine) The lesions noted were large, widespread, and numerous, involved considerable mucous membranes, and were of the fixed eruptive type Druggists have reported an increase in the sale of this preparation, and this increase is in direct proportion to the increasing number of reactions observed The group of 27 patients observed contained 21 males ranging from 21 to 64 years of age Seventeen of these patients had taken 666 in the past, but only 9 reported a previous reaction Without exception, where there had been more than one reaction, succeeding reactions were even more severe and of a more frequent nature

Members of a white group reported that they used the preparation only for a specific medical reason, while members of the Negro group were more inclined to use it for a hangover, a good cleaning out," and purgative action The dose in Negro patients was consistently larger than indicated in the directions and was taken quite frequently, in contrast to that in white patients, who generally followed directions The increased sensitivity to reaction among Negroes may be described as cumulative with patients continuing to use the preparation in spite of both past and current reactions

The Diagnosis of Lupus Erythematosus A H Slepyan, D V Frost, L R Overby and others A M A Arch Dermat 75 845 849 (June) 1957 [Chicago]

Lupus erythematosus, because of its protean manifestations, has often posed a difficult diagnostic problem in spite of many well-established criteria The ratio of bound to free pantothenic acid levels of whole blood in patients with discoid and systemic lupus erythematosus is constantly lower than those found in normal controls Patients with lymphocytic infiltration of the skin exhibited a normal to high bound-to-free pantothenic acid ratio Patients with lymphoblastoma showed an abnormally low bound-to-free ratio, which suggests that the same inherent enzymatic defect was peculiar to both lymphoblastoma and discoid and systemic lupus erythematosus Similar findings regarding systemic and discoid lupus erythematosus suggest that they are one and the same, as the same enzymatic defect is manifest in both stages of disorder

Cutaneous Candidiasis A Clinical and Therapeutic Study S A Simuangco, M C Fernandez, P O Campos and others J Philippine M A 33 257-270 (April) 1957 [Manila]

A group of 147 patients who were suspected of having fungus diseases of the skin were studied with the aim of determining the incidence of candidiasis (moniliasis) in relation to other mycotic infections For Candida alone, 50 3% of the patients were found to be positive, indicating that this was probably the primary cause, whereas 6 8% were positive for Candida and other fungi, indicating that the candidiasis was superimposed The over-all incidence of candidiasis was 57 1% It appeared that candidiasis is more common in fungous diseases than it was thought to be, according to other reports One hundred thirty-one patients with cutaneous candidiasis were given nystatin tablets in doses ranging from 250,000 to 500,000 units 3 to 4 times daily, ointment and powder were applied once or twice a day The majority of the patients responded to the drug within the first week The lesions of the 6 cured patients (4 58%) disappeared within 14 to 56 days Follow-up culture for Candida albicans gave negative results in 2 of these patients Remarkable improvement was observed in 80 of the 131 patients (61 06%), 12 had slight response (9 16%), and 24 had no response at all (18 39%) The presence of secondary changes, such as eczematization and secondary infection, should be cleared up before treatment with nystatin is started Certain predisposing factors such as diabetes, obesity, malnutrition, or occupation need a previous correction An additional treatment with hydrocortisone might produce better results in the complete cure of cutaneous candidiasis

UROLOGY

Bladder Neck Obstruction and Associated Lesions in Children E Burns, E H Ray Jr and J W Morgan J Urol 77 733-740 (May) 1957 [Baltimore]

Obstructive lesions of the lower urinary tract in children are now recognized as common Changes in the bladder and upper urinary tract are in proportion to the degree of obstruction and the length of time it has existed Since these lesions are congenital, the duration of the obstruction is determined by the age of the child Associated lesions are frequently encountered In the 129 children with congenital bladder neck obstruction treated surgically by the authors at the Ochsner Clinic and Charity Hospital in New Orleans, the types of lesions and their distribution were as follows congenital prostatic valves in 3 congenital hypertrophy of the verumontanum in 2, and congenital hypertrophy of the internal sphincteric area in 123 The remaining patient had a greatly dilated urinary tract when examined at the age of 6 weeks An obstructive lesion was questionable in this child, and failure of normal development appeared more likely The signs and symptoms produced by bladder neck obstruction in children show wide individual variation Perhaps the most common finding that leads to investigation of the urinary tract is pus in the urine Infected urine was found in 79% of the 129 children, and 89% of these had suffered recurrent attacks of chills and fever Infection in these patients is a complication of obstruction, frequently a late one, and the fact that urinary infection led to the initial urologic investigation indicates that earlier symptoms were overlooked or considered insignificant Importance should therefore be attached to any variation from the normal voiding pattern in a child Other symptoms were frequency and straining to urinate, urgency, enuresis, overflow incontinence, acute retention, and hematuria The incidence of acute retention in children is low Acute retention occurred in only 5 of the 129 children Gross hematuria occurred in only 6 of this group It usually occurs while the patient is straining to urinate and is more likely to happen in those with an acute infection

Changes in the urinary tract produced by bladder neck obstruction in children vary somewhat from those observed in adults The period during which hypertrophy of the bladder musculature may compensate for the increased difficulty in performing its function appears to be short in children, giving way to such rapidly progressive dilatation that the bladder becomes a large atonic sac Vesicoureteral reflux is also encountered more frequently in children In those patients with reflux varying degrees of hydronephrotic atrophy of the renal cortex will be found Vesical diverticula of clinical significance occur less frequently in children They were found in only 2 of the 129 children The diagnosis of obstruction of the lower urinary tract in children requires, in addition to routine chemical and bacteriological studies of the urine and renal function tests, specific urologic studies These include excretory urography, retrograde cystography, cystoureteroscopic examination, and retrograde pyeloureterography Treatment of bladder neck obstruction in children is surgical removal of the primary obstructive lesion by transurethral resection or through the suprapubic transvesical approach

Local Injections of Hydrocortisone for the Effective Treatment of Circumscribed Strictures of the Urethra M K Lyons and C D Bonner J Urol 77 741-755 (May) 1957 [Baltimore]

The authors report experiences with this type of treatment in 53 patients with 56 strictures of the urethra and the meatus There were 18 strictures of the meatus 15 of the anterior urethra, 18 of the membranoprostatic junction and 5 of the posterior urethra An aqueous suspension of hydrocortisone was injected directly into the tunica propria at the base of the stricture at 2 clock positions 5 and 7 or 3 and 9 No anesthesia was required in the meatal stricture, and the injection was done directly without the aid of urethroscopy, a 2 cc syringe and a 22-gauge needle being used Strictures of the anterior and posterior urethra were located and visualized through the McCarthy foroblique panendoscope, and injection was done with an especially devised endoscopic needle passed through the panendoscope and inserted into the tunica propria beneath the stricture under direct vision The most important feature of this insertion is to get the needle well under the mucosa and into the tunica propria underlying the stricture before the hydrocortisone is injected The injection was done under local intraurethral anesthesia with 1 500 nupercaine solution or, more desirable, under low spinal or general anesthesia as the case indicated With each treatment the stricture was first dilated to its limit of distensibility without rupture

Total dosages of 25 mg to 150 mg of hydrocortisone in from 1 to 8 injections were administered When more than 1 injection was given, the successive ones were done in most instances at intervals of 2 days Total dosage and interval of injections varied Patients received prophylactic chemotherapy or antibiotic therapy, however, no complications resulted from the omission of this therapy in more recent cases Fifty-one of the 56 urethral and meatal strictures were cured by the local injection of hydrocortisone into the tunica propria below 2 clock positions of the urethral stricture Cure was usually obtained with 3 or fewer injections Two dense elongated strictures and 3 multiple strictures not amenable to this therapy were eventually cured by internal urethrotomy and injection of the incision site with hydrocortisone

OPHTHALMOLOGY

Treatment of Retinal Artery Occlusion L M Weerekoon Am J Ophth 43 947-950 (June) 1957 [Chicago]

The pathology of retinal artery occlusion is still being debated Three causes have been suggested (1) embolism, (2) local vascular accident (thrombus), and (3) arterial spasm Of these, the first has been rejected Thrombosis is generally thought to be the cause of retinal occlusion today, but the author believes that arterial spasm is always present, either as the primary cause or secondary to a thrombus Patients with retinal artery occlusion can be divided into 2 groups (1) young adults who show no abnormality other than cold fingertips or other evidence of vasomotor instability, in whom arterial spasm is the primary cause of occlusion, and (2) persons who are past middle life and who have arteriosclerotic disease and/or hypertension and thus are predisposed to develop thrombi The author feels that treatment of retinal occlusion should be based on the premise that every case involves a spasm Retrobulbar injection of a vasodilator is the best of the medical methods of treatment, while stellate ganglion block, in an attempt to reduce sympathetic overactivity, is apparently an effective surgical measure Seventeen patients were given retrobulbar injections of Priscol (imidazoline hydrochloride) or Ronicol (β-pyridyl-carbinol) followed by systemic treatment, and useful vision was restored in many of the patients Priscol is contraindicated in patients with coronary disease and peptic ulcer because of its histamine-like action

INDUSTRIAL MEDICINE

Organic Phosphate Insecticide Poisoning An Agricultural Occupational Hazard C S Petty J Louisiana M Soc 109 158-164 (May) 1957 [New Orleans]

Four cases of organic phosphate insecticide poisoning incurred during the crop-dusting season are reported in patients between the ages of 15 and 44 years The first patient was employed as a "mixer" of insecticides and was wearing a raincoat, gloves, and a respirator when opening cans of 25% Parathion Since he was adequately protected it may be assumed that the mask leaked or the filter elements may have been exhausted by long use In this patient, mild Parathion poisoning was manifested by profuse sweating, a marked tremor of the hands, a sluggish reaction of normal-sized pupils to light, and a blood cholinesterase level of about 50% of normal The second patient was spraying methyl Parathion on crops with his aeroplane A slight leak developed in the insecticide storage tank in the front cockpit of the aircraft, permitting the insecticide to leak onto the pilot's leg for several days Weakness, abdominal cramping, nausea, vomiting, and diarrhea occurred When he was admitted to hospital his pupils were narrow, he was profusely sweating and salivating and had a coarse tremor of the hands The pilot of an airplane faces an additional hazard from organic phosphate poisoning in that the pupils may be narrowed and accommoda tion may be impaired, making judgment of depth and distance poor The third patient applied tetraethylpyrophosphate with a small hand-sprayer to a small crop No protective clothing was worn and no respirator was used Weakness, muscular twitching, abdominal cramps, nausea, and vomiting occurred within 2 hours and the blood cholinesterase level was 5% of normal Tetraethylpyrophosphate is the most potent of the organic phosphate insecticides and should never be handled without adequate protective clothing and equipment The 4th patient was employed as a 'flagger' in the cotton fields He was exposed for several days to a spray of 1% methyl Parathion released from an aeroplane Dizziness and vomiting occurred The next day cigarettes made him feel sick, and his blood cholinesterase level was about 40% of normal

All 4 patients were treated successfully with atropine The recommended initial dose of the drug is 2 to 4 mg (1/30 to 1/15 grain) given intravenously or intramuscularly If, 10 to 20 minutes after such a trial dose, drying of the skin and mucous membranes and dilatation of the pupils have not occurred, the patient may be given large amounts of the drug (up to 30 mg in the first hour) In giving the atropine, the effects of the drug are 'titrated' against the effects of the poison Artificial respiration may be necessary for the comatose patient The contaminated clothes of the victim must be removed and the surface of the body washed in an effort to prevent continuing absorption of the agent through the skin Repeated atropinization may be necessary

Absence of Raynaud's Phenomenon in Workers Using Vibratory Tools in a Warm Climate T A Lloyd Davies, E M Glaser and C P Collins Lancet 1 1014-1016 (May 18) 1957 [London]

The Raynaud phenomenon is induced by exposure to cold and precipitated by the use of vibratory tools In cold weather people working with vibratory tools often display this phenomenon on their way to work, especially if they use a bicycle or a motor-cycle, but symptoms may disappear during work when the body warms up Raynaud s phenomenon is unknown among men using vibratory tools in Singapore, and it was therefore of interest to find out whether it is either masked or prevented by a warm climate Singapore is within 1½ degrees of the equator, and its climate is uniformly warm Studies were made on 31 workers who had been using vibratory tools in a Singapore dockyard Most of them had done this work for more than 3 years and 10 of them for more than 15 years All tests were made in a cool room at 10 5 C (51 F) while the men wore tropical clothes but no shoes or socks A period of not less than 75 minutes was allowed to enable the men to complete thermal adjustments After the preliminary period each man immersed his right hand and wrist in water at 10 C (50 F) for 10 minutes

None of the dockyard workers showed any signs of Raynaud s phenomenon The evidence suggests that vibration induces the Raynaud phenomenon only if there is also intermittent cooling of the body and of the hands The authors conclude that an investigation on the lines of the present experiment, involving thorough cooling of the whole body as well as immersion of the hand, would show up potential sufferers from the Raynaud phenomenon If all those intending to use vibratory tools were tested in this way, it would be possible to classify Raynaud's phenomenon as an industrial disease Thorough general warming of the body and hands before starting work in places heated to relatively high environmental temperatures might be advantageous

PUBLIC HEALTH

Preventive Treatment of Tuberculosis in Italy The Present-Day Approach to the Problem S Taronna Clin pediat 39 31-39 (Jan) 1957 (In Italian) [Bologna, Italy]

The author describes 3 periods of the campaign against tuberculosis that has been waged in Italy since 1927 The first period, from 1927 to 1940, was characterized by the obligatory establishment of centers for the fight against the disease Problems such as early diagnosis and assistance for admission to health centers were solved considerably, and the mortality rate diminished markedly The incidence of infection and the mortality rate increased markedly during the second period, which lasted from the beginning of the war to the immediate post-war years Antibiotics reduced markedly the mortality rate during the third period, from the post-war years to the present day A tendency toward chronic forms of the disease, the large number of infectious sources, and resistance to antibiotics are the major problems that the campaign for the prevention of tuberculosis faces in Italy today Mass roentgenologic examination reduced the morbidity rate of the city of Venice from 5 23% in 1950 to 1 02% in 1955 Very good results have been obtained with vaccination Only 0 36% of 3,952 children that were vaccinated contracted tuberculosis, 2,742 of these children lived in a contagious environment, and 0 51% of these contracted tuberculosis The author thinks that the next step of the campaign is to improve the conditions of chronic patients, who increase continuously in number

Grand Rapids Fluoridation Study—Results Pertaining to the Eleventh Year of Fluoridation F A Arnold Am J Pub Health 47 539-545 (May) 1957 [Albany, N Y]

The results of 11 years of water fluoridation in Grand Rapids, Mich , for both deciduous and permanent teeth have been summarized The results of this study, together with others which have been conducted for similar periods, indicate the feasibility of this procedure for the control of dental caries In all studies the findings show a reduction of 60 to 65% in the prevalence of caries in the permanent teeth of children born subsequent to the change in water supply Furthermore, the evidence strongly suggests beneficial effects on teeth which were formed, or erupted, prior to the initiation of water fluoridation

BOOK REVIEWS

Principles of Surgical Physiology By Harry A Davis, M D, C M F A C S, Clinical Professor of Surgery and Director of Surgical Research, College of Medical Evangelists, Los Angeles Foreword by Lester R Dragstedt, Professor of Surgery and Chairman of Department, University of Chicago, Chicago Cloth $20 Pp 841 with 49 illustrations Paul B Hoeber, Inc (medical book department of Harper & Brothers), 49 E 33rd St New York 16 1957

This book is a well-written condensation of currently available information It is primarily a surgical textbook with emphasis on physiological aspects, for the author maintains a clinical approach throughout The usual presentation of the basic physiology of each system is included, but, in addition, most of the disease processes of interest to the surgeon are discussed specifically and symptoms and signs are correlated with physiological changes The book is divided into two sections The first consists of 13 chapters dealing with such general subjects as nutrition, cellular metabolism, surgical convalescence, and tissue transplantation The second section, also 13 chapters, is devoted to a more detailed presentation of each major system of the body—except the special senses Throughout the book and in an appendix are tables of chemical and physiological tests currently in use, including pulmonary function tests, data on cardiac catheterization, and tests of endocrine function In addition to normal values, changes resulting from specific lesions are recorded This is an excellent textbook for the young surgeon For the more advanced student, however, the coverage of many subjects is too brief, and discussion of controversial points is too limited or omitted The value of this volume would be enhanced by increasing the scope of the bibliography Nevertheless, this is one of the best works available on this subject

Ciba Foundation Symposium on the Nature of Viruses Editors for Ciba Foundation G E W Wolstenholme, O B E, M A M B, and Elaine C P Millar, A H -W C, A R I C Cloth $8 Pp 292, with 57 illustrations Little, Brown & Company, 34 Beacon St, Boston 6, J & A Churchill, Ltd, 104 Gloucester Place, Portman Sq, London, W 1, England, 1957

Since the Ciba Foundation was established in London in 1947 as an international educational and scientific center, it has arranged conferences and symposiums and arranged for publication of the proceedings In this 32nd book of the series, 17 eminent scientists give their ideas on such topics as the structure of viruses revealed by the electron microscope, the chemistry of viral mutants, ribonucleic acid in influenza virus, multiplication of animal and plant viruses, morphologic aspects of viral infections of cells revealed by fluorescent antibodies, the size and distribution of specific antigens in virus-infected tissues and their significance, and the interaction of phages with bacterial cell walls The papers and discussions show that a long road has been traveled from the point of departure—the mysterious filterable infective particle—to a typical virus particle envisioned as a structure made up of nucleic acid carrying genetic material and a coating of proteins with enzymes determining its antigenic specificity It is now known that the protein and nucleic acid portion of certain plant viruses can be dissociated and later recombined to form a reconstituted infective particle, making it clear that viral multiplication is a special case of protein biosynthesis

Aside from great intrinsic interest to biology, the implications of the phenomena analyzed and discussed extend far beyond the field of viral research and have many practical objectives They make it apparent that the solution of the problems of controlling viral multiplication by chemotherapeutic agents can come only through biochemical study of viruses Prevention of viral diseases requires either the preparation of purified vaccines or the selection of living vaccine strains appropriate to the purpose Why it is so difficult to prepare a formalin-treated poliomyelitis vaccine of constant value is partly explained From a human point of view, the important feature of any virus is its virulence The approach to the resulting problems is mainly academic in that it stresses the morphologic, physical, and chemical methods of developing hypotheses The biologist and the physician should take advantage of this opportunity to learn about the contributions being made by physicists and chemists to viral research This book requires careful study It is a rich source of critical information assembled in a well-printed, well-illustrated form It brings together scattered observations and facts by reviewing for the scientist certain phases of viral research Students of microbiology should broaden their horizons by reading this book

Understanding Surgery Edited and compiled by Robert E Rothenberg, M D Cloth $4 95 Pp 620, with 103 illustrations by Sylvia and Lester V Bergman McGraw-Hill Company, Inc, 330 W 42nd St, New York 36, 95 Farrington St, London, E C 4, England, 253 Spadina Rd, Toronto, Canada, 1955

This book was written for the laity Clarity has been maintained throughout by the use of nontechnical terms and simple pen and ink drawings Eight authors have collaborated on sections dealing with ocular surgery, otorhinolaryngology, neurosurgery, surgery of the neck and chest, abdominal surgery, urology, gynecology, orthopedics, and surgery of the superficial tissues Unnecessary overlapping of subject material has been avoided Although the technical material is excellent and timely, this is a glaring example of poor book making The pages have been placed off center and the sentences seem to run up and down hill It was indeed a strain on the eyes to attempt to read the book It may be that the reviewer's copy was a bad one and that in later copies these faults have been corrected The material contained in the book can be recommended to the lay reader

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These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated

QUERIES AND MINOR NOTES

PROGNOSIS WITH AURICULAR STANDSTILL

To the Editor —*If sustained or prolonged auricular standstill, as demonstrated on the electrocardiogram, persists for more than a few seconds, what can be expected as to the prognosis and what would the etiology be suspected to be? Is this condition ever found in a situation where idioventricular rhythm has been established and in which the patient has survived for several weeks months, or years?*

Roy W Money, M D , Pulaski, Tenn

Answer —The diagnosis of auricular standstill may be difficult to make electrocardiographically It is assumed to be present when a nodal or idioventricular rhythm is present without visible P waves However, differentiation must be made from nodal rhythm with P waves buried within the QRS complexes and from auricular fibrillation with complete atrioventricular block When one labels a rhythm auricular standstill, it is assumed that there is complete sinus arrest, with block of retrograde conduction from the atrioventricular node, so that no impulse enters the auricular muscle from the nodal pacemakers In addition, the auricular myocardium is markedly depressed, so that no auricular foci are set up Auricular standstill has been produced experimentally after anoxemia, cooling of the sinus node, potassium poisoning, and carbon monoxide poisoning Carotid sinus pressure, coronary ischemia, and rheumatic myocarditis are other etiological factors The commonest clinical cause for this condition is overdosage with digitalis and quinidine It generally occurs in elderly patients with congestive heart failure, severe coronary disease, and ischemia of the myocardium It rarely occurs in the absence of organic heart disease The auricular standstill is usually transient and generally occurs when arrhythmias such as auricular fibrillation, are converted to normal sinus rhythm Not infrequently, however, it may last for several hours or days In one reported case, it lasted for 11 days There is no reason why it cannot last longer

The prognosis is poor The majority of patients with auricular standstill die within several days or weeks, but this is probably the result of the severe organic heart disease and heart failure rather than the impaired auricular conduction Treatment includes stopping the administration of digitalis and quinidine, if they are etiological factors, and administering atropine, ephedrine, or Isuprel Potassium salts may help if overdosage of digitalis is a factor The associated coronary ischemia and the cardiac failure must be treated

USE OF DIGESTIVE ENZYMES FOR EXUDATE OF OTITIS MEDIA

To the Editor —*Ear pathology that progresses from an acute otitis media to a subacute or a chronic otitis media with the development of a thick exudate has been observed in children After a myringotomy has been done and after this thick glue-like mucus has been aspirated from a child's ear, would it be harmful to inject an enzyme, such as Tryptar, in the middle ear?*

Ray M Moose, M D , San Bernardino, Calif

Answer —A digestive enzyme, such as Tryptar, or Caroid, a brand of digestive ferment derived from the Carica papaya, may be used to digest the thick mucus or the mucopurulent exudate of an acute, subacute, or chronic otitis media effectively and safely

EXOPHTHALMOS WITH CONJUNCTIVAL EDEMA

To the Editor —*What is the recent treatment for exophthalmos and conjunctival edema associated with toxic diffuse goiter (Graves' disease)?*

Henry G Kurz, M D , La Habra, Calif

This inquiry was referred to two consultants whose respective replies follow —Ed

Answer —The common type of exophthalmos associated with toxic diffuse goiter is that which parallels the course of the hyperthyroidism This is a benign form of exophthalmos which requires no special treatment other than correction of the hyperthyroidism Exophthalmos that is accompanied by conjunctival edema, chemosis, and extraocular muscle palsy is more likely to be the progressive or malignant type Wide variations in the course of the exophthalmos make it almost impossible to predict the eventual outcome in any particular case Furthermore, the unpredictable course makes it extremely difficult to determine whether improvement in the exophthalmos is due to a spontaneous remission or to the therapy that happens to be in use at the time

In general, there is no effective medical treatment for progressive exophthalmos If hyperthyroidism is present, it should be corrected in a positive manner by subtotal thyroidectomy after preparation with antithyroid drugs or with radioiodine (I^{131}) if the patient is over 50 years of age There is no conclusive evidence that progression of the exophthalmos is accelerated by the elimination of hyperthyroidism It is true that exophthalmos may progress after correction of hyperthyroidism with antithyroid drugs, with thyroidectomy, or with I^{131}, but it is also true that exophthalmos has progressed severely in the presence of active hyperthyroidism Elimination of hyperthyroidism is, therefore the first step in the treatment of exophthalmos

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The answers here published have been prepared by competent authorities They do not, however, represent the opinions of any medical or other organization unless specifically so stated in the reply Anonymous communications and queries on postal cards cannot be answered Every letter must contain the writer's name and address but these will be omitted on request

Care of the protruding eyes should include elevation of the head of the bed at night, protection of the cornea during the day by the use of glasses, warm compresses to the eyes three or four times a day, application of protective ointments at bedtime to avoid drying of the cornea, prompt, energetic treatment of conjunctival infection, and avoidance of excessive fatigue, excitement, or nervous tension. These measures are simply protective and do not alter the course of the exophthalmos. Treatment of exophthalmos with desiccated thyroid, triiodothyronine, cortisone, estrogens, pituitary, or orbital radiation has given such inconsistent results as to cast serious doubt on their value. If the course of the exophthalmos is steadily progressive and the degree of proptosis is such as to jeopardize the eyes, orbital decompression by surgery is indicated without delay.

Answer.—The bulk of accumulated evidence points to toxic diffuse goiter as being a thyrohypophysial syndrome, and there is much evidence to indicate that the pituitary gland is intimately connected with exophthalmos in this condition, although it is frequently dissociated from the size of the goiter or the degree of thyroid activity measurable.

Exophthalmos may appear before the occurrence of hyperthyroidism or in instances in which it is never detected. It frequently comes during increasing hyperthyroidism and not infrequently appears after its disappearance. It is thought to be due to hyperpituitarism associated with an excess ouput of thyroid-stimulating hormone or a closely connected factor, an exophthalmos-producing substance.

The types of treatment available include the following, most of which are designed to inhibit pituitary activity. It is considered good practice to correct hypothyroidism, and it is probably good practice to correct hypometabolism even though definite evidence of hypothyroidism is not present. The use of larger than physiological doses of desiccated thyroid or triiodothyronine have been tried in the past, with only mild success, but there are now a few instances on record in which prompt and marked improvement has followed the use of large doses of triiodothyronine.

Estrogens and androgens have been used as pituitary inhibitors, but in exophthalmos they have been of little or no practical value. Some patients in this country and in England have been treated with corticotropin (ACTH), cortisone, or hydrocortisone or with combinations of these. Records to date indicate that the response to these substances is not readily practicable. Though dramatic response may occur, the improvement may in some instances be great in the actual proptosis, but in most instances, as more results accumulated, the result is chiefly on soft-tissue swelling of lids and conjunctiva. In those instances in which corneal drying or beginning ulceration threatens, or the loss of an eye, orbital decompression (Nafziger's operation) may be necessary.

The method which has recently been highly successful in a few instances was reported first in 1942, namely, the production of hypopituitarism. A similar patient has recently been reported in the *Journal of Clinical Endocrinology and Metabolism* by M. Albeaux Fernet and co-workers, and other unpublished data indicate that hypopituitarism caused by surgery may be followed by almost complete disappearance of all eye signs associated with severe exophthalmos.

Local eye care and local operations may be useful. One of the most important points is to prevent dryness of the cornea. This can be helped by use of protective ointments at night and the wearing of shields over the eyes to maintain a moist atmosphere over the cornea. Skin divers' goggles are useful for this purpose. If the condition is fairly marked and stationary, covering of the eye may be assisted by tarsorrhaphy. For the associated diplopia, muscle surgery has some usefulness. It has to be postponed until the condition is stationary, and its usefulness is limited because of the type of change which has occurred within the affected muscle, rendering it relatively paralytic due to infiltration of leukocytes, mucopolysaccharides, and later with much associated fibrosis.

OCULAR EFFECTS OF ALCOHOL

To the Editor.—*It has been said that diminution of the visual field is among the first manifestations of physiological disturbances caused by alcohol in drivers of motor cars. Is the fact really proved, or, on the contrary, is it scientifically denied?*

H. Hinglais, M.D., Paris, France.

This inquiry has been referred to two consultants, whose respective replies follow.—Ed.

Answer.—The classic eye sign of alcohol intoxication is the cecocentral scotoma characteristic of tobacco alcohol amblyopia. There is some question whether the scotoma results from alcohol alone. No available text describes contriction of the visual field as an early manifestation of physiological disturbance caused by alcohol. Loss of visual acuity in tobacco alcohol amblyopia is temporary and is recovered shortly after the use of tobacco is discontinued even though the use of alcohol is continued. Diminution in visual acuity occurs with optic neuritis and optic atrophy in methyl alcohol poisoning and may go into total permanent blindness. The first ocular manifestation of alcohol intoxication is diplopia and loss of judgment of distance. This disturbance is of more importance to drivers of motor cars than diminution of vision or constriction of the visual field.

Answer.—It is generally assumed that the effect of alcohol on the central nervous system is due to poisoning of tissue cells so that they are unable to use oxygen properly. In other words, a state analogous to tissue anoxia is produced and would explain the striking effects of alcohol on the central nervous system, since nervous tissue is very susceptible to oxygen want. The symptoms of anoxia in relation to vision are diminished visual acuity, constriction of the visual fields, reduction in retinal sensitivity, and increased fatiguability of the muscles of accommodation and convergence (Wilmer and Berens. *J. A. M. A.* 71:1394-1398 [Oct. 26] 1918). A progressive loss in the visual fields with increasing lack of oxygen has also been reported by Evans and McFarland (*Am. J. Ophth.* 21:968, 1938).

In studying the relationship of alcoholic intoxication and anoxemia, it has been shown that an excess of oxygen and carbon dioxide tended to sober up the subjects more rapidly and that they did better in psychological tests (McFarland and Barach *Am J M Sc* 192 186, 1936)

STEROID THERAPY AND SURGERY

To the Editor —*Recently several articles have stated that, if a patient has had a course of steroid therapy and then has required a major surgical procedure even up to six months after the last dose of cortisone, he should be fortified with cortisone prior to and after the operation Does this apply to corticotropin (ACTH) as well as cortisone and its derivatives? Just what is meant by having had cortisone therapy within six months of the surgical procedure? Does it mean at least one day or one week of steroid therapy? Does the amount of steroid given bear a lot of weight?*

Sidney W Berezin, M D , Spring Valley, N Y

Answer —To date there are no available reports which indicate that the same prophylaxis must be taken with corticotropin as with cortisone However, this should not be considered as conclusive until more time has elapsed

If the patient has had any cortisone therapy within six months of the time of surgery, he should be fortified with cortisone Although this is still questionable, present thinking is that it is a safe prophylactic measure The amount of steroid necessary to produce a depression in adrenal function is still not known, since reactions differ in individuals The amount of steroid given, however, should constitute a guide by which one may determine the amount of fortification necessary

TOXICITY OF PHOTOGRAPHIC CHEMICALS

To the Editor —*Have any toxic symptoms been noted in patients who work with any of the following substances Elon, hydroquinone, Kodalk, potassium alum, potassium bromide, sodium carbonate, and sodium sulfite? Is there any special reference to anemia or bone-marrow depression?*

Morton I Silverman, M D , Allentown, Pa

Answer —The substances mentioned are commonly found in black-and-white photographic developers There is no evidence of anemia or bone marrow depression either in workers who manufacture or package the substances or in photographers who use them as developers The only known toxic symptom is that of occasional contact dermatitis, which may result from continued contact with the alkaline developing solution or occasionally from a specific sensitivity Accidental or suicidal ingestion of large amounts of mixtures of the solid developing agents has been known to give rise to acute hemolytic effects and symptoms resembling those of phenol intoxication On the other hand, hydroquinone has been ingested in amounts as large as 300 to 500 mg per day for several months without any effect on the blood picture in humans (Carlson and Brewer *Proc Soc Exper Biol & Med* 84 684, 1953)

DIAGNOSIS AND TREATMENT OF PERNICIOUS ANEMIA

To the Editor —*Regarding the query entitled 'Diagnosis and Treatment of Pernicious Anemia' in* The Journal, *May 11, 1957, page 221, I notice that the inquirer requests an estimate of the number of patients who may have been treated for pernicious anemia, especially in rural districts, who have never been given a gastric test I can contribute one such case, for I live in a rural area*

Laboratory tests on a patient showed that he had a hemoglobin level below 7 Gm per 100 cc , negative fecal occult blood, and suggestive pernicious anemia There was a reduced vibration sensation of the feet and a history of "thin blood several years previously with associated weakness Inasmuch as free hydrochloric acid was found in the gastric secretion after the histamine test, the case of this patient was apparently one of the rare instances in which pernicious anemia has existed with free hydrochloric acid in the stomach The hemoglobin level was raised to more than 12 Gm per 100 cc through no other therapy than parenterally administered vitamin B_{12} The patient also had a striking improvement in the vibration sensation of the feet During this period he ingested no more liver than would occasionally be included in his ordinary diet

P Evans Adams, M D , Norlina, N C

The above comment was referred to the consultant who answered the original query, and his reply follows —Ed

To the Editor —*There certainly are few patients with pernicious anemia who have free hydrochloric acid but not enough intrinsic factor in their gastric juice to insure adequate absorption of vitamin B_{12} from the gastrointestinal tract This consultant, however, has seen two such patients Moreover, about 35 to 50 such patients have been described in the literature, but not all of these have been thoroughly studied The patient described by the physician writing the comment may well represent another example There are only a few other situations in which improvement following injections of vitamin B_{12} would have been so dramatic On the other hand, the condition is so rare that it is quite justifiable to regard the presence of free hydrochloric acid in the gastric secretion as ordinarily ruling out a diagnosis of pernicious anemia One formerly could prove the absence of intrinsic factor only by collecting the gastric juice and assaying it for intrinsic factor Now one can give a standard dose of radioactive vitamin B_{12} and demonstrate that it is absorbed poorly unless a source of intrinsic factor is administered along with the radioactive B_{12}*

One cautionary comment, however, should be made Vitamin B_{12}-responsive megaloblastic anemia may occur in association with certain diseases or abnormalities of the intestinal tract In these conditions free hydrochloric acid is often present in the gastric contents That is true of idiopathic steatorrhea or nontropical sprue The absence of diarrhea does not exclude this possibility, and the anemia may respond to vitamin B_{12} as well as to folic acid

The megaloblastic anemia due to fish-tapeworm or Ascaris infestation will be corrected by the administration of vitamin B_{12}, *free hydrochloric acid is occasionally found in the gastric juice One may rarely see a strict vegetarian who has a dietary deficiency of vitamin* B_{12} *The megaloblastic anemia seen with intestinal strictures, anastomoses, or massive diverticula of the small intestine usually responds better to folic acid but may at times show improvement after therapy with parenterally administered vitamin* B_{12} *The fact that the patient described in the comment above responded to injections of vitamin* B_{12}, *therefore, indicates that he probably had a vitamin* B_{12} *deficiency, but it does not necessarily prove that he has true pernicious anemia Additional studies would be necessary to provide that evidence For a report of such an investigation see the article by Harris-Jones and associates (*Blood 12 461, *1957)*

WESTERGREN SEDIMENTATION RATE TECHNIQUE

To the Editor —*In the Queries and Minor Notes section of* The Journal *for May 25, 1957, page 509, there is a comment regarding the correct normals for the Westergren method of determining the sedimentation rate of erythrocytes*

*Clay-Adams, Inc, manufacturer of laboratory supplies, had occasion in 1956 to recheck its standards and literature on this subject After extensive investigations and consultations with several hematologists, it was decided that our old instructions were incorrect insofar as normals were concerned, and these were changed to agree with the limits of sedimentation rate advocated by Westergren Westergren gives a normal range of 1 to 3 mm sedimentation after one hour for men and 4 to 7 mm sedimentation after one hour for women (*Acta med scandinav 139 214, *1951) Ham gives the same normal range limits which are based on a dilution rate of 1 part of sodium citrate (3 8% solution) to 4 parts of blood Where the dilution rate is reduced to 1 part of sodium citrate solution to 8 or 9 parts of blood, the normal sedimentation rate is given as 0 to 15 mm after one hour for men and 0 to 20 mm after one hour for women (Todd and Sanford Clinical Diagnosis by Laboratory Methods, Philadelphia, W B Saunders Company, 1948)*

Gradwohl appears to be incorrect He suggests a dilution of 0 4 cc of sodium citrate solution to 1 6 cc of blood, or 1 to 4, then gives the normals for a dilution rate of 1 to 8 (Gradwohl Clinical Laboratory Methods and Diagnosis, ed 5, St Louis, C V Mosby Company, 1956, vol 1, p 961)

Helpful references to this same question appeared in the Queries and Minor Notes section of The Journal *for March 23, 1940, page 1101, and again for Dec 3, 1955, page 1422*

Dewey H Palmer
Director of Product Development
Clay-Adams, Inc
141 E 25th St
New York 10

CONSTANT PERSPIRATION OF THE HANDS

To the Editor — *In* The Journal, *June 29, 1957, page 1040, I notice the answer to the query entitled "Constant Perspiration of the Hands" This condition of hyperhidrosis can be completely disabling for certain individuals, and when the condition cannot be controlled with conservative medical measures, the operation of thoracic sympathectomy is indicated This operation has been performed for many years for hyperhidrosis involving the upper extremities The operation of bilateral second thoracic ganglionectomy can also be performed with little risk, this does not produce bilateral Horner's syndrome, which will be produced if a stellate ganglionectomy is performed*

J Grafton Love, M D
Mayo Clinic
Rochester, Minn

The above comment was referred to the consultant who answered the original query, and his reply follows —Ed

To the Editor —*Few cases of hyperhidrosis of the hands are so severe and so resistant to conservative management as to make sympathectomy necessary While this procedure is successful in drying the hands, dermatologists see more trouble from dry skin than from hyperhidrosis It is necessary to open the chest bilaterally to perform this operation, and there are possible complications Most local neuro surgeons require from two to three hours for the procedure, it may be necessary to do it in two stages This is a major procedure for a minor condition Many question the advisability of performing major surgery for a psychosomatic manifestation Certainly, sympathectomy should be reserved as a last resort in the treatment of hyperhidrosis of the hands*

CANDIDA OVERGROWTH FOLLOWING ANTIBIOTIC THERAPY

To the Editor —*The reply of the second consultant to the query regarding pruritus following Terramycin therapy in* The Journal, *June 22, 1957, page 940, was very erudite, but the ointment recommended would be very expensive The San Diego price for 10 Gm of prednisone to be added to the salve advised would be about $100 Could there have possibly been a misprint in the recommended dosage?*

James E Reeves, M D
205 Walnut Ave
San Diego 3, Calif

The above comment was referred to the consultant who answered the original query, and his reply follows —Ed

To the Editor —*The addition of 10 Gm of prednisone (Meticorten) was an obvious error What was meant was 10 Gm of 0 5% prednisolone cream (Meti-Derm) or 5 Gm of 2 5% hydrocortisone acetate with neomycin sulfate (Neo-Cortef) or a similar hydrocortisone like product to yield 34 Gm of salve*

JOURNALS ABSTRACTED IN THE CURRENT MEDICAL LITERATURE DEPARTMENT, MAY-AUGUST 1957

Abstracts have been made of important articles in the following journals in the Current Medical Literature Department of THE JOURNAL during the past four months Any of the journals, except those starred will be lent by the Library of the American Medical Association to individuals in Continental United States and Canada who subscribe to its scientific periodicals and to members of the American Medical Association and its student organization No charge is made to members, but the fee for other borrowers is 15 cents in stamps for each periodical Three journals may be borrowed at a time for a period not exceeding five days Thus most of these journals are accessible to the general practitioner

*A M A Archives of Dermatology Chicago
*A M A Archives of Internal Medicine Chicago
*A M A Archives of Neurology and Psychiatry Chicago
*A M A Archives of Ophthalmology Chicago
*A M A Archives of Otolaryngology Chicago
*A M A Archives of Pathology Chicago
*A M A Archives of Surgery Chicago
*A M A Journal of Diseases of Children Chicago
Acta chirurgica scandinavica Stockholm
Acta dermato venereologica Stockholm
Acta endocrinologica Copenhagen
Acta haematologica Basel
Acta medica et biologica Niigata Japan
Acta medica italica di malattie infettive e parassitarie Rome
Acta medica scandinavica Stockholm
Acta neurologica latinoamericana Buenos Aires
Acta obstetricia et gynecologica scandinavica Stockholm
Acta oto laryngologica Stockholm
Acta paediatrica Uppsala
Acta paediatrica belgica Brussels
Acta pathologica et microbiologica scandinavica Copenhagen
Acta radiologica Stockholm
Acta tuberculosea belgica Brussels
Acta tuberculosea scandinavica Copenhagen
Acta urologica belgica Brussels
Acta vitaminologica Milan
Aggiornamenti sulle malattie di infezione Rome
American Heart Journal St Louis
American Industrial Hygiene Association Quarterly Chicago
American Journal of Anatomy Philadelphia
American Journal of Clinical Nutrition New York
American Journal of Clinical Pathology Baltimore
American Journal of Digestive Diseases New York
American Journal of Gastroenterology New York
American Journal of Hygiene Baltimore
American Journal of the Medical Sciences Philadelphia
American Journal of Medical Technology Houston
American Journal of Medicine New York
American Journal of Obstetrics and Gynecology St Louis
American Journal of Ophthalmology Chicago
American Journal of Psychiatry New York
American Journal of Public Health Albany New York
American Journal of Roentgenol and Radium Therapy Springfield Ill
American Journal of Surgery New York
American Journal of Tropical Medicine and Hygiene Baltimore
American Review of Tuberculosis New York
American Surgeon Baltimore
Anaesthesia London
Anaesthesist Berlin
Anatomical Record Philadelphia
Anales de la Facultad de medicina de Montevideo Montevideo
Angiology Baltimore
Annales d endocrinologie Paris
Annals of Human Genetics London
Annals of Internal Medicine Lancaster Pa
Annales de medecine Paris
Annales medicinae internae Fenniae Helsinki
Annales d oculistique Paris
Annales d oto laryngologie Paris
Annals of Otology Rhinology and Laryngology St Louis
Annali di ottalmologia e clinica oculistica Genoa
Annales paediatrici Basel
Annales Paediatriae Fenniae Helsinki
Annals of the Rheumatic Diseases London
Annals of Surgery Philadelphia
Archivio E Maragliano di patologia e clinica Genoa
Archiv fur Geschwulstforschung Leipzig
Archiv fur Gewerbepathologie und Gewerbehygiene Berlin
Archivos del Instituto de cardiologia de Mexico Mexico D F
Archives internationales de pharmacodynamie et de thérapie Ghent
Archiv fur klinische Chirurgie Berlin
Archiv fur klinische und experimentelle Dermatologie Berlin
Archives of Disease in Childhood London
Archives des maladies du coeur et des vaisseaux Paris
Archives des maladies professionnelles de médecine du travail et de sécurité sociale Paris
Archiv für Ohren Nasen und Kehlkopfheilkunde Berlin
Archiv für orthopadische und Unfall Chirurgie Munich
Archives of Physical Medicine and Rehabilitation Chicago
Archivio di scienze biologiche Bologna
Archivio per le scienze mediche Turin
Archivio di tisiologia e delle malattie dell apparato respiratorio Naples
Archivos uruguayos de medicina cirugía y especialidades Montevideo
Arizona Medicine Phoenix Arizona
Arquivo de patologia Lisbon
Australian & New Zealand Journal of Surgery Melbourne
Arztliche Wochenschrift Berlin
Australasian Annals of Medicine Sydney
Beitrage zur klinischen Chirurgie Munich
Belgische tijdschrift voor geneeskunde Leuven
Bibliotek for laeger Copenhagen
Blood New York
Blut Munich
Boletín de la Asociación medica de Puerto Rico Santurce
Bollettino e memorie della Societa tosco umbra di chirurgia Florence
Bordeaux chirurgical Bordeaux
Brain London
British Heart Journal London
British Journal of Anaesthesia Altrincham
British Journal of Clinical Practice London
British Journal of Dermatology London
British Journal of Industrial Medicine London
British Journal of Plastic Surgery Edinburgh
British Journal of Radiology London
British Journal of Surgery Bristol
British Journal of Tuberculosis and Diseases of the Chest London
British Journal of Urology Edinburgh
British Journal of Venereal Diseases London
British Medical Journal London
Bulletin of the New York Academy of Medicine New York
Bulletin de la Societe royale belge de gynecologie et d obstetrique Brussels
Bulletin of the World Health Organization Geneva
California Medicine San Francisco
Canadian Journal of Biochemistry and Physiology Ottawa
Canadian Journal of Microbiology Ottawa
Canadian Journal of Public Health Toronto
Canadian Medical Association Journal Montreal
Canadian Services Medical Journal Ottawa
Cancer Philadelphia
Cardiologia Basel
Cardiologia pratica Florence
Cervello Naples
Chinese Medical Journal Peking
Chirurg Berlin
Chirurgia italiana Belluno
Chirurgia toracica Rome
Circulation New York
Cirugía ginecología y urologia Madrid
Clinica pediatrica Bologna
Clinical Science London
Connecticut State Medical Journal New Haven Conn
Cuore e circolazione Rome
Danish Medical Bulletin Copenhagen
Delaware State Medical Journal Farnhurst Del
Dermatologica Basel
Deutsche medizinische Wochenschrift Stuttgart
Deutsche Zeitschrift fur die gesamte gerichtliche Medizin Berlin
Diabetes New York
Die Medizinische Stuttgart
Diseases of the Chest Chicago
East African Medical Journal Nairobi
Electroencephalography and Clinical Neurophysiology Montreal
Eye Ear Nose & Throat Monthly Chicago
Fertility and Sterility New York
Folia cardiologica Milan
Folia hereditaria et pathologica Milan
Folia medica Naples
Fortschritte auf dem Gebiete der Rontgenstrahlen und der Nuklearmedizin Stuttgart
Fortschritte der Neurologie Psychiatrie und ihrer Grenzgebiete Stuttgart
Frankfurter Zeitschrift fur Pathologie Munich
Friuli medico Udine
Gastroenterologia Basel

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* Cannot be lent

Gastroenterology Baltimore
Geburtshilfe und Frauenheilkunde Stuttgart
Geriatrics Minneapolis
German Medical Monthly Stuttgart
Giornale di medicina militare Rome
Giornale veneto di scienze mediche Venice
Gynaecologia Basel
Harefuah Tel Aviv
Hawaii Medical Journal Honolulu
Helvetica chirurgica acta. Basel
Indian Journal of Dermatology and Venereology Bombay
Indian Journal of Pediatrics Calcutta
International Archives of Allergy and Applied Immunology Basel
International Journal of Anesthesia Baltimore
International Journal of Leprosy New Orleans
Irish Journal of Medical Science Dublin
Journal of Allergy St Louis
Journal of the American Dietetic Association. Chicago
Journal of the American Geriatrics Society Baltimore
Journal of the American Medical Women s Association New York
Journal of Applied Physiology Washington D C
Journal of Aviation Medicine St Paul
Journal of Biological Chemistry Baltimore
Journal of Biophysical and Biochemical Cytology Baltimore
Journal de chirurgie Paris
Journal of the Christian Medical Association of India Calcutta
Journal of Chronic Diseases St Louis
Journal of Clinical Endocrinology and Metabolism Springfield Ill.
Journal of Clinical and Experimental Psychopathology and Quarterly Review of Psychiatry and Neurology New York
Journal of Clinical Investigation New York
Journal of Clinical Pathology London
Journal of the Faculty of Radiologists Bristol
Journal of the Florida Medical Association Jacksonville
Journal of Hygiene London
Journal of the Indian Medical Association Calcutta
Journal of the Indiana State Medical Association Indianapolis
Journal of Infectious Diseases Chicago
Journal of International College of Surgeons Chicago
Journal of Investigative Dermatology Baltimore
Journal of Iowa State Medical Society Des Moines
Journal of the Irish Medical Association Dublin
Journal of Kansas Medical Society Topeka
Journal of the Kentucky State Medical Association Louisville
Journal of Laboratory and Clinical Medicine St Louis
Journal Lancet. Minneapolis
Journal of Laryngology and Otology London
Journal of the Louisiana State Medical Society New Orleans
Journal of the Maine Medical Association Brunswick
Journal of the Medical Association of Georgia Atlanta
Journal de médecine de Lyon Lyon
Journal of Michigan State Medical Society St Paul
Journal of the Mount Sinai Hospital New York
Journal of the National Cancer Institute Washington D C
Journal of Neurology Neurosurgery and Psychiatry London
Journal of Neuropathology and Experimental Neurology New York
Journal of Neurosurgery Springfield, Ill
Journal of Nutrition Philadelphia
Journal of Obstetrics and Gynaecology of the British Empire London
Journal of the Pakistan Medical Association Karachi
Journal of Pathology and Bacteriology Edinburgh
Journal of the Philippine Medical Association Manila
Journal of Physiology London
Journal of the Royal College of Surgeons of Edinburgh Edinburgh
Journal of Thoracic Surgery St Louis
Journal of Tropical Pediatrics New Orleans
Journal d urologie médicale et chirurgicale Paris
Journal of Urology Baltimore
Khirurgiya Moscow
Klinische Medizin Vienna
Klinische Monatsblatter fur Augenheilkunde Stuttgart
Klinische Wochenschrift Berlin
Lancet London
Laryngoscope St Louis
Leprosy Review London
Lille Chirurgical Lille
Maandschrift voor kindergeneeskunde Leyden
Maryland State Medical Journal Baltimore
Medical Annals of the District of Columbia Washington D C
Medical Journal of Australia. Sydney
Medical Journal of Malaya Singapore
Medical Officer London
Medical Record and Annals Houston
Medicina del lavoro Milan
Medicine Baltimore
Memoires de l Academie de chirurgie Paris
Military Medicine Washington D C
Minerva anestesiologica Turin
Minerva cardioangiologica Turin
Minerva cardioangiologica europea Turin
Minerva chirurgica Turin
Minerva dermatologica Turin
Minerva ginecologica Turin
Minerva medica Turin
Minerva ortopedica Turin
Minerva pediatrica Turin
Minnesota Medicine St Paul
Mississippi Doctor Booneville Miss
Missouri Medicine St Louis
Monatsschrift fur Kinderheilkunde Berlin
Monatsschrift fur Unfallheilkunde und Versicherungsmedizin Berlin
Münchener medizinische Wockenschrift Munich
Nature London
Nebraska State Medical Journal Lincoln
Nederlandsch tijdschrift voor geneeskunde Haarlem
Nervenarzt. Berlin
New England Journal of Medicine Boston
New York State Journal of Medicine New York
North Carolina Medical Journal Winston Salem
Northwest Medicine Seattle
Nova Scotia Medical Bulletin Halifax N S
Obstetrics and Gynecology New York
Ohio State Medical Journal Columbus
Ophthalmologica Basel
Oral Surgery Oral Medicine and Oral Pathology St Louis
Pediatria Naples
Pediatria internazionale Rome
Pediatrics Springfield Ill
Pediatrie Lyon
Pennsylvania Medical Journal Harrisburg
Plastic & Reconstructive Surgery Baltimore
Policlinico (sezione medica) Rome
Policlinico (sezione pratica) Rome
Postgraduate Medicine Minneapolis
Practitioner London
Prensa médica argentina Buenos Aires
Presse médicale Paris
Proceedings of the Royal Society of Medicine London
Proceedings of Staff Meetings of Mayo Clinic Rochester Minn
Psychiatria et neurologia Basel
Psychiatry Washington D C
Psychoanalytic Quarterly New York
Psychosomatic Medicine New York
Public Health Reports Washington D C
Punjab Medical Journal Jullundur City
Quarterly Bulletin Northwestern University Medical School Chicago
Quarterly Journal of Medicine Oxford
Quarterly Journal of Studies on Alcohol New Haven
Radiologia medica Turin
Radiology Syracuse N Y
Rassegna medica sarda Cagliari
Rassegna di studi psichiatrici Siena
Research Quarterly Washington D C
Revista argentina de cardiolgia Buenos Aires
Revista argentina de urología Buenos Aire
Revue belge de pathologie et de médecine expérimentale Brussels
Revista española de pediatria Saragossa
Revue de chirurgie orthopedique et reparatrice de l appareil moteur Paris
Revista clinica española Madrid.
Revista española de pediatría Zaragoza
Revue française d études cliniques et biologiques Paris
Revue d hématologie Paris
Revue de laryngologie otologie rhinologie Bordeaux
Revista médica de Chile Santiago
Revue médicale de Liege Liege
Revista de neuro psiquiatria Lima
Revista paulista de medicina São Paulo
Revue du praticien Paris
Riforma medica Naples
Rivista clinica pediatrica Florence
Rivista italiana di igiene Pisa
Rivista di medicina aeronautica Rome
Rivista di neurologia Naples.
Rivista di ostetricia e ginecologia Florence
Rocky Mountain Medical Journal Denver
Santo Tomas Journal of Medicine Manila
Scandinavian Journal of Clinical & Laboratory Investigation Oslo
Schweizerische medizinische Wochenschrift Basel
Schweizerische Zeitschrift fur Tuberkulose und Pneumonologie Basel
Science Washington D C
Science Reports of the Research Institutes Tohoku University Series C (Medicine) Sendai
Scottish Medical Journal Glasgow
Sea View Hospital Bulletin New York
Semaine des hôpitaux de Paris Paris
Semaine médicale Paris
Sight Saving Review New York
South African Medical Journal Cape Town
Southern Medical Journal Birmingham Ala
Strahlentherapie Munich
Surgery St Louis
Surgery Gynecology and Obstetrics Chicago
Texas State Journal of Medicine Austin
Thoraxchirurgie Stuttgart
Tidsskrift for den norske laegeforening Oslo
Toulouse Médical Toulouse
Transactions of the Royal Society of Tropical Medicine and Hygiene London
Tuberkulosearzt Stuttgart
Ugeskrift for laeger Copenhagen
Union medicale du Canada Montreal
University of Michigan Medical Bulletin Ann Arbor
United States Armed Forces Medical Journal Washington D C
Urologia Treviso
Valsalva Rome
Virginia Medical Monthly Richmond
West Virginia Medical Journal Charleston
Western Journal of Surgery Obstetrics and Gynecology Portland Ore
Wiener klinische Wochenschrift Vienna
Wiener medizinische Wochenschrift Vienna
Wiener Zeitschrift fur Nervenheilkunde und deren Grenzgebiete Vienna
Wisconsin Medical Journal Madison
Zeitschrift fur die gesamte innere Medizin Leipzig
Zentralblatt fur Gynakologie Leipzig
Zeitschrift fur Kinderheilkunde Berlin
Zeitschrift für Orthopadie und ihre Grenzgebiete Stuttgart.
Zeitschrift fur Tropenmedizin und Parasitologie Stuttgart

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The letters used to explain in which department the matter indexed appears are as follows "E," Editorial, 'C,' Correspondence, ab," abstracts, the asterisk (*) indicates an original article in The Journal

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  emergency in carcinoma of uterine tube [Southwood] 1619—ab
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Am —*American*
A —*Association*
Coll —*College*
Commn —*Commission*
Comm —*Committee*
Conf —*Conference*
Cong —*Congress*
Dist —*District*
Div —*Division*
Found —*Foundation*
Hosp —*Hospital*
Indust —*Industrial*
Inst —*Institute*
Internat —*International*
M —*Medical*
Med —*Medicine*
Nat —*National*
Pharm —*Pharmaceutical*
Phys —*Physicians*
Soc —*Society*
Surg —*Surgery*
Surgs —*Surgeons*
S —*Surgical*

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